



Pergamon

Cement and Concrete Research 31 (2001) 1661–1778

**CEMENT AND  
CONCRETE  
RESEARCH**

## 10-year index (1991–2000)

1991

Volume 21, Number 1

January

<b>J.G.M. van Mier:</b> Mode I Fracture of Concrete: Discontinuous Crack Growth and Crack Interface Grain Bridging	1
<b>X. Wu, S. Yen, X. Shen, M. Tang, L. Yang:</b> Alkali-Activated Slag Cement Based Radioactive Waste Forms	16
<b>A. Tucek, J. Bartak:</b> Mathematical Modelling of the Dynamics of the Concrete Mix	21
<b>Y. Zeng, N. Yang:</b> A Comparative Study of the Ferritephase in High-Iron Cements with the Pure $C_2A_xF_{1-x}$ by Mossbauer Spectroscopy	31
<b>O.S.B. Al-Amoudi, Rasheeduzzafar, M. Maslehuddin:</b> Carbonation and Corrosion of Rebars in Salt Contaminated OPC/PEA Concretes	38
<b>A.N. Scian, J.M. Porto Lopez, E. Pereira:</b> Mechanochemical Activation of High Alumina Cements — Hydration Behaviour. I.	51
<b>H. Strunge, S. Chatterji, A.D. Jensen:</b> Studies of Alkali-Silica Reaction: Part 8. Correlation between Mortar-Bar Expansion and $\Delta$ Values	61
<b>R.E. Steinke, M.R. Silsbee, D.K. Agrawal, R. Roy, D.M. Roy:</b> Development of Chemically Bonded Ceramics in the $CaO-SiO_2-P_2O_5-H_2O$ System	66
<b>Y. Berthaud:</b> Damage Measurements in Concrete via an Ultrasonic Technique. Part I. Experiment	73
<b>O.P. Shrivastava, S. Komarneni, E. Breval:</b> $Mg^{2+}$ Uptake by Synthetic Tobermorite and Xonotlite	83
<b>C. Shi, X. Wu, M. Tang:</b> Hydration of Alkali-Slag Cements at 150 °C	91
<b>E. Douglas, A. Bilodeau, V.M. Malhotra, J. Brandstetr:</b> Alkali Activated Ground Granulated Blast-Furnace Slag Concrete: Preliminary Investigation	101
<b>A. Saasen, C. Marken, J. Dawson, M. Rogers:</b> Oscillating Rheometer Measurements on Oilfield Cement Slurries	109
<b>R. Sersale, R. Cioffi, G. Frigione, F. Zenone:</b> Relationship between Gypsum Content, Porosity, and Strength in Cement. I. Effect of $SO_3$ on the Physical Microstructure of Portland Cement Mortars	120
<b>E. Scholl, D. Knofel:</b> On the Effect of $SO_2$ and $CO_2$ on Cement Paste	127
<b>D. Penev, M. Kawamura:</b> Moisture Diffusion in Soil-Cement Mixtures and Compacted Lean Concrete	137
<b>M.D. Cohen, B. Mobasher:</b> Effects of Sulfate and Expansive Clinker Contents on Expansion Time of Expansive-Cement Paste	147
<b>N. Banthia, J-F. Trottier:</b> Deformed Steel Fiber - Cementitious Matrix Bond under Impact	158
<b>Z. SU, J.M.J.M. BIJEN, J.A. LARBI:</b> The Influence of Polymer Modification on the Adhesion of Cement Pastes to Aggregates	169
<b>K.O. Kjellsen, R.J. Detwiler, O.E. Gjorv:</b> Development of Microstructures in Plain Cement Pastes Hydrated at Different Temperatures	179

### DISCUSSIONS

<b>J. Bensted</b>	190
<b>K. Rajczyk</b>	192
<b>S. Chatterji</b>	196
<b>T. Knudsen</b>	198
<b>S. Chatterji</b>	199
<b>S. Chatterji</b>	200
<b>G.W. Groves</b>	201

### NEWS ITEMS

202

<b>M. Yu. Leshchinsky, V.A. Velichko, A.M. Leshchinsky:</b> The Use of Fly Ash in Concretes Subject to Heat Treatment	205
<b>Y. Berthaud:</b> Damage Measurements in Concrete via an Ultrasonic Technique. Part II. Modeling	219
<b>C. Lobo, M.D. Cohen:</b> Pore Structure Development in Type K Expansive Cement Pastes	229
<b>Z. Su, J.M.J.M. Bijen, J.A. Larbi:</b> Influence of Polymer Modification on the Hydration of Portland Cement	242
<b>C. Atzeni, A. Marcialis, L. Massidda, U. Sanna:</b> Mechanical and Thermohygroscopic Properties of Adhesion between PCMs and Cement Supports	251
<b>N. Hearn, R.H. Mills:</b> A Simple Permeameter for Water or Gas Flow	257
<b>P. Neumann-Venereve, H.-H. Zysk, I. Odler:</b> An Artificial Concrete Aggregate Made from Coal Combustion Ashes	262
<b>S. Chatterji:</b> On the Relevance of Expressed Liquid Analysis to the Chemical Processes Occurring in a Cement Paste	269
<b>K. Kobayashi, K. Shuttah:</b> Oxygen Diffusivity of Various Cementitious Materials	273
<b>S. Slanicka:</b> The Influence of Fly Ash Fineness on the Strength of Concrete	285
<b>R.F. Feldman, J.J. Beaudoin:</b> Pretreatment of Hardened Hydrated Cement Pastes for Mercury Intrusion Measurements	297
<b>Y. Ohama, K. Demura, K. Kobayashi, Y. Satoh, M. Morikawa:</b> Pore Size Distribution and Oxygen Diffusion Resistance of Polymer-Modified Mortars	309
<b>H.T. Cao, V. Sirivivatnanon:</b> Corrosion of Steel in Concrete with and without Silica Fume	316
<b>D.P. Bentz, E.J. Garboczi:</b> Percolation of Phases in a Three-Dimensional Cement Paste Microstructural Model	325
<b>J.E. Ujkelyi, A.J. Ibrahim:</b> Hot Weather Concreting with Hydraulic Additives	345
<b>Y. Tong, H. Du, L. Fei:</b> Hydration Process of Beta-Dicalcium Silicate Followed by MAS and CP/MAS Nuclear Magnetic Resonance	355
<b>C.H. Bland, J.H. Sharp:</b> A Conduction Calorimetric Study of Gasifier Slag-Portland Cement Blends	359
<b>N. Rafai, R. Letolle, P. Blanc, A. Person, P. Gegout:</b> Isotope Geochemistry ( $^{13}\text{C}$ , $^{18}\text{O}$ ) of Carbonation Processes in Concretes	368
<b>M. Murat, A. Attari:</b> Modification of Some Physical Properties of Gypsum Plaster by Addition of Clay Minerals	378
<b>K.O. Kjellsen, R.J. Detwiler, O.E. Gjorv:</b> Backscattered Electron Image Analysis of Cement Paste Specimens: Specimen Preparation and Analytical Methods	388
<b>R. Rumm, H. Haranczyk, H. Peemoeller, M.M. Pintar:</b> Proton Free Induction Decay Evolution during Hydration of White Synthetic Cement	391

## DISCUSSIONS

<b>S. Chatterji</b>	394
<b>E.J. Garboczi</b>	396

## NEWS ITEMS

	397
--	-----

<b>N. Retta:</b> Extract from Endod (Phytolacea Dodecandra), a Soap Berry Plant, in the Making of Concrete	401
<b>C.-L. Hwang, D.-H. Shen:</b> The Effects of Blast-Furnace Slag and Fly Ash on the Hydration of Portland Cement	410
<b>M.S. Zaghloul, M.N. Youns:</b> Effects of Both Irradiation Energy and Annealing Temperatures on Hall Voltage of New Concrete Mixer	426
<b>P.J. Dewaele, E.J. Reardon, R. Dayal:</b> Permeability and Porosity Changes Associated with Cement Grout Carbonation	441
<b>C. Atzeni, L. Massidda, U. Sanna:</b> Properties of Gas Concretes Containing High Proportion of PFA	455
<b>S. Slanicka:</b> The Influence of Condensed Silica Fume on the Concrete Strength	462
<b>Q.-Y. Gao, H.-B. Hou:</b> Structural Model and Hydraulic Activity of Granulated Cinder in Electric Factories	471
<b>E. Nägele:</b> Correlation Between Zeta-Potential and Mechanical Properties for Cementitious Materials	478
<b>M. Sharma, Vishwamittar, K.S. Harchand, D. Raj:</b> Mössbauer and X-Ray Diffraction Studies of Two Dry and Hydrated Portland Cements and Their Clinker	484
<b>C.W. Farrell, K.C. Hover, P.W. Plumley:</b> Natural Remanent Magnetization of Portland Cement Concrete	489

<b>K. Brantervik, G.A. Niklasson:</b> Circuit Models for Cement Based Materials Obtained from Impedance Spectroscopy	496
<b>Y. Tong, H. Du, L. Fei:</b> Comparison between the Hydration Processes of Tricalcium Silicate and Beta-Dicalcium Silicate	509
<b>X. Ping, J.J. Beaudoin, R. Brousseau:</b> Flat Aggregate-Portland Cement Paste Interfaces. I. Electrical Conductivity Models	515
<b>E. Douglas, G. Pouskouleli:</b> Prediction of Compressive Strength of Mortars Made with Portland Cement — Blast-Furnace Slag — Fly Ash Blends	523
<b>Z. Su, J.M.J.M. Bijen, J.A. Larbi:</b> Influence of Polymer Modification on the Hydration of Portland Cement	535
<b>N. Nomura, H. Mihashi, M. Izumi:</b> Correlation of Fracture Process Zone and Tension Softening Behavior in Concrete	545
<b>F.O. Okafor:</b> An Investigation on the Use of Superplasticizer in Palm Kernel Shell Aggregate Concrete	551
<b>A.M.K. Abdelalim, H.Y. Ghorab:</b> The Effect of Bituminous Emulsion on the Sulfate Resistance of Cement Pastes	558
<b>L. De Ceukelaire:</b> Concrete Surface Deterioration due to the Expansion by the Formation of Jarosite	563
<b>W. Prince, R. Perami, R. Grezes-Beset:</b> Role de la Soude dans les Reactions entre Alcalis et Granulats de Type Silico-Aluminates	575
<b>S.W. Yu, C.L. Page:</b> Diffusion in Cementitious Materials: 1. Comparative Study of Chloride and Oxygen Diffusion in Hydrated Cement Pastes	581
<b>S.B. Park, B.I. Lee, Y.S. Lim:</b> Experimental Study on the Engineering Properties of Carbon Fiber Reinforced Cement Composites	589
<b>M.A. Mustafa, K.M. Yusof:</b> Mechanical Properties of Hardened Concrete in Hot-Humid Climate	601
<b>Z. Rusin:</b> A Mechanism of Expansion of Concrete Aggregate Due to Frost Action	614
<b>K.A. Heiskanen, H.C. Rhim, P.J.M. Monteiro:</b> Computer Simulations of Limited Angle Tomography of Reinforced Concrete	625
<b>S. Goñi, C. Andrade, C.L. Page:</b> Corrosion Behaviour of Steel in High Alumina Cement Mortar Samples: Effect of Chloride	635
<b>H. Wang, J.E. Gillott:</b> Mechanism of Alkali-Silica Reaction and the Significance of Calcium Hydroxide	647
<b>A. Georgiades, Ch. Ftikos, J. Marinos:</b> Effect of Micropore Structure on Autoclaved Aerated Concrete Shrinkage	655
<b>J. Bensted, I.C. Callaghan, A. Lepre:</b> Comparative Study of the Efficiency of Various Borate Compounds as Set-Retarders of Class G Oilwell Cement	663

## DISCUSSIONS

<b>S. Chatterji</b>	669
<b>M.S. Khan</b>	671
<b>S. Chatterji</b>	673
<b>J.J. Beaudoin, V.S. Ramachandran, R.F. Feldman</b>	674
<b>J. Bensted</b>	675
<b>K. Kobayashi and Y. Uno</b>	676
<b>J. Bensted</b>	678
<b>J. Bensted</b>	679

## NEWS ITEMS

680

1991

Volume 21, Number 5

September

<b>M.R. Ismail, S.A.S. El-Hemaly:</b> Hydration Kinetics of Cement Paste Containing Concrete Admixtures	683
<b>V. Yogendran, B.W. Langan, M.A. Ward:</b> Hydration of Cement and Silica Fume Paste	691
<b>M. Frias, M.I. Sanchez de Rojas, M.P. Luxan, N. Garcia:</b> Determination of Specific Surface Area by the Laset Diffraction Technique, Comparison with the Blaine Permeability Method	709
<b>X. Ping, J.J. Beaudoin, R. Brousseau:</b> Flat Aggregate-Portland Cement Paste Interfaces. II. Transition Zone Formation	718
<b>Z. Su, J.M.J.M. Bijen, H.A. Larbi:</b> The Influence of Polymer Modification on the Adhesion of Cement Pastes to Aggregates	727

<b>H. Mihashi, N. Nomura, S. Niiseki:</b> Influence of Aggregate Size on Fracture Process Zone of Concrete Detected with Three Dimensional Acoustic Emission Technique	737
<b>W. Prince, R. Perami:</b> Influence de la Chaux dans les Reactions entre Alcalis et Granulats de Type Silico-Aluminates	745
<b>E. Senbetta, W.L. Dolch:</b> The Effects on Cement Paste of Treatment with an Extended Set Control Admixture	750
<b>R. Trettin, G. Oliew, C. Stadelmann, W. Wiek:</b> Very Early Hydration of Dicalcium Silicate-Polymorphs	757
<b>V.T. Yilmaz, F.P. Glasser:</b> Early Hydration of Tricalcium Aluminate-Gypsum Admixtures in the Presence of Sulphonated Melamine Formaldehyde Super-Plasticizers	765
<b>Rasheeduzzafar, S.E. Hussain, S.S. Al-Saadoun:</b> Effect of Cement Composition on Chloride Binding and Corrosion of Reinforcing Steel in Concrete	777
<b>R.G. Hutchison, J.T. Chang, H.M. Jennings, M.E. Brodwin:</b> Thermal Acceleration of Portland Cement Mortars with Microwave Energy	795
<b>M.-H. Zhang, O.E. Gjorv:</b> Effect of Silica Fume on Cement Hydration in Low Porosity Cement Pastes	800
<b>J.J. Beaudoin, V.S. Ramachandran, R.F. Feldman:</b> Identification of Hydration Reactions Through Stresses Induced by Volume Change. I. C <sub>3</sub> A Systems	809
<b>P.S. Mangat, B.T. Molloy:</b> Influence of PFA, Slag and Microsilica on Chloride Induced Corrosion of Reinforcement in Concrete	819
<b>M. Barrioulet, R. Saada, E. Ringot:</b> A Quantitative Structural Study of Fresh Cement Paste by Image Analysis. Part I. Image Processing	835
<b>M. Pigeon, R. Gagne, P.-C. Aitcin, N. Banthia:</b> Freezing and Thawing Tests of High-Strength Concretes	844
<b>B. Fournier, M.A. Berube:</b> Application of the NBRI Accelerated Mortar Bar Test to Siliceous Carbonate Aggregates Produced in the St. Lawrence Lowlands (Quebec, Canada). Part I: Influence of Various Parameters on the Test Results	853
<b>M. Moukwa, M. Brodwin, S. Christo, J. Chang, S.P. Shah:</b> The Influence of the Hydration Process upon Microwave Properties of Cements	863
<b>L. Redler:</b> Quantitative X-ray Diffraction Analysis of High Alumina Cements	873
<b>H.-J. Kuzel, H. Pollmann:</b> Hydration of C <sub>3</sub> A in the Presence of Ca(OH) <sub>2</sub> , CaSO <sub>4</sub> ·2H <sub>2</sub> O and CaCO <sub>3</sub>	885
<b>V. Naidenov:</b> Rapid Hardening Cement-Gypsum Composites for Shotcreting on the Base of Bulgarian Raw Materials. Part I. Introduction, Materials, Design of the Composition, Strength and Deformability	896
<b>J. Olek, S. Diamond:</b> Alteration of Polished Sections of Free Lime Containing Cement Clinker by Short-Term Atmospheric Exposure	905
<b>A. Saasen, E. Rafoss, A. Behzadi:</b> Experimental Investigation of Rheology and Thickening Time of Class G Oil Well Cement Slurries Containing Glycerin	911
<b>S.L. Sarkar, P.-C. Aitcin:</b> Phenomenological Investigation of Concrete Deterioration in a Median Barrier	917
<b>Y. Berthaud, E. Ringot, D. Fokwa:</b> A Test for Delaying Localization in Tension. Experimental Investigation	928
<b>I.B. Plecas, A.D. Peric, J.D. Drijaca, A.M. Kostadinovic:</b> Mathematical Modeling of Physico-Chemical Characteristics of Concrete in Immobilization of Radioactive Waste	941
<b>P.J.M. Monteiro:</b> A Note on the Hirsch Model	947
<b>DISCUSSIONS</b>	
<b>W.G. Hime</b>	951
<b>E. Scholl, D. Knöfel</b>	952
<b>M.N. Haque, O.A. Kayyali</b>	953
<b>O.S.B. Al-Amoudi, Rasheeduzzafar, M. Maslehuddin</b>	956
<b>P.W. Brown, P. LaCroix</b>	958
<b>NEWS ITEMS</b>	
	959

<b>D. Breyse, N. Schmitt:</b> A Test for Delaying Localization in Tension. Numerical Interpretation Through a Probabilistic Approach	963
<b>I. Odler, H. Köster:</b> Investigation on the Structure of Fully Hydrated Portland Cement and Tricalcium Silicate Pastes. III. Specific Surface Area and Permeability	975
<b>Z. Su, J.A. Larbi, J.M.J.M. Bijen:</b> The Interface Between Polymer-Modified Cement Paste and Aggregates	983



<b>M. Atkins, D. Macphee, A. Kindess, F.P. Glasser:</b> Solubility Properties of Ternary and Quaternary Compounds in the $\text{CaO-Al}_2\text{O}_3\text{-SO}_3\text{-H}_2\text{O}$ System	991
<b>X. Ping, J.J. Beaudoin, R. Brousseau:</b> Effect of Aggregate Size on Transition Zone Properties at the Portland Cement Paste Interface	999
<b>M.-H. Zhang, O.E. Gjrv:</b> Effect of Silica Fume on Pore Structure and Chloride Diffusivity of Low Porosity Cement Pastes	1006
<b>A. Durekovic, B. Tkalcic-Ciboci:</b> Cement Pastes of Low Water to Solid Ratio: An Investigation of the Polymerization of Silicate Anions in the Presence of a Superplasticizer and Silica Fume	1015
<b>A. Gabrisova, J. Havlica, S. Sahu:</b> Stability of Calcium Sulphoaluminate Hydrates in Water Solutions with Various pH Values	1023
<b>V. Naidenov:</b> Rapid Hardening Cement-Gypsum Composites for Shotcreting on the Base of Bulgarian Raw Materials. Part II. Structural Investigations, Tests in Production Conditions, Conclusions	1028
<b>Rasheeduzzafar, S.E. Hussain, A.S. Al-Gahtani:</b> Pore Solution Composition and Reinforcement Corrosion Characteristics of Microsilica Blended Cement Concrete	1035
<b>Z. Liu, X. Cui, M. Tang:</b> MgO-Type Delayed Expansive Cement	1049
<b>R. Saada, E. Ringot, M. Barrioulet:</b> A Quantitative Structural Study of Fresh Cement Paste by Image Analysis. Part 2: Measurements and Their Application	1058
<b>B. Fournier, M.A. Brub:</b> Application of the NBRI Accelerated Mortar Bar Test to Siliceous Carbonate Aggregates Produced in the St. Lawrence Lowlands (Quebec, Canada). Part 2: Proposed Limits, Rates of Expansion, and Microstructure of Reaction Products	1069
<b>D.G. Montgomery, G. Wang:</b> Instant-Chilled Steel Slag Aggregate in Concrete — Strength Related Properties	1083
<b>R.K. Dhir, M.R. Jones, A.M.G. Seneviratne:</b> Diffusion of Chlorides into Concrete. Influence of PFA Quality	1092
<b>M.N. Haque, M.K. Gopalan, D.W.S. Ho:</b> Estimation of Insitu Strength of Concrete	1103
<b>A. Papo, B. Cauffin:</b> A Study of the Hydration Process of Cement Pastes by Means of Oscillatory Rheological Techniques	1111
<b>X. Hu, F.H. Wittmann:</b> An Analytical Method to Determine the Bridging Stress Transferred within the Fracture Process Zone: I. General Theory	1118
<b>CH. Ftikos, A. Georgiades, TH. Philippou:</b> Preparation and Hydration Study of Alinite Cement	1129
<b>X. Aimin, S.L. Sarkar:</b> Microstructural Study of Gypsum Activated Fly Ash Hydration in Cement Paste	1137
<b>P.F.G. Banfill, R.E. Carter, P.J. Weaver:</b> Simultaneous Rheological and Kinetic Measurements on Cement Pastes	1148
<b>J.A. Qazweeni, O.K. Daoud:</b> Concrete Deterioration in a 20-Year-Old Structure in Kuwait	1155
<b>R.A. Cook, K.C. Hover:</b> Experiments on the Contact Angle Between Mercury and Hardened Cement Paste	1165
<b>G. Goswami, B.N. Mohapatra, J.D. Panda:</b> Characterization of Burning Condition of Cement Clinker by X-ray Diffractometry	1176

## DISCUSSIONS

<b>H.G. Sreenath, N.P. Rajamane</b>	1180
<b>O.S.B. Al-Amoudi, Rasheeduzzafar, M. Maslehuddin</b>	1183
<b>S. Chatterji</b>	1185
<b>D.P. Bentz, E.J. Garboczi</b>	1187
<b>P. Paulini</b>	1189
<b>C.H. Bland, J.H. Sharp</b>	1191

<b>NEWS ITEMS</b>	1192
<b>INDEX TO VOLUME 21</b>	1195
<b>KEYWORD INDEX</b>	1200
<b>AUTHOR INDEX</b>	1202

<b>Z. Liu, X. Cui, M. Tang:</b> Hydration and Setting Time of MgO-Type Expansive Cement	1
<b>T. Nishikawa, K. Suzuki, S. Ito, K. Sato, T. Takebe:</b> Decomposition of Synthesized Ettringite by Carbonation	6
<b>K. Pettersson:</b> Effects of Silica Fume on Alkali-Silica Expansion in Mortar Specimens	15

<b>X. Ping, J.J. Beaudoin:</b> Effects of Transition Zone Microstructure on Bond Strength of Aggregate-Portland Cement Paste Interfaces	23
<b>J.J. Beaudoin, V.S. Ramachandran, R.F. Feldman:</b> Identification of Hydration Reactions Through Stress Induced by Volume Change. II. $C_4AF$ Systems	27
<b>R.K. Dhir, M.R. Jones:</b> Development of PFA Use in Precast Concrete Manhole Units	35
<b>M.-H. Zhang, O.E. Gjorv:</b> Penetration of Cement Paste into Lightweight Aggregate	47
<b>L. Hachani, J. Carpio, C. Fiaud, A. Raharinaivo, E. Triki:</b> Steel Corrosion in Concretes Deteriorated by Chlorides and Sulphates: Electrochemical Study Using Impedance Spectrometry and "Stepping Down the Current" Method	56
<b>S. Diamond, S. Mindess:</b> SEM Investigations of Fracture Surfaces Using Stereo Pairs: I. Fracture Surfaces of Rock and of Cement Paste	67
<b>M.G. Ali, Rasheeduzzafar, S.S. Al-Saadoun:</b> Migration of Ions in Concrete due to Cathodic Protection Current	79
<b>S. Tsivilis, S. Tsimas, A. Moutsatsou:</b> Contribution to the Problems Arising from the Grinding of Multicomponent Cements	95
<b>H.G. Wheat:</b> Corrosion Behavior of Steel in Concrete Made with Pyrament Blended Cement	103
<b>K.O. Kjellsen, R.J. Detwiler:</b> Reaction Kinetics of Portland Cement Mortars Hydrated at Different Temperatures	112
<b>N.B. Singh, M.P. Dwivedi, N.P. Singh:</b> Effect of Superplasticizer on the Hydration of a Mixture of White Portland Cement and Fly Ash	121
<b>J. Tritthart:</b> Changes in Pore Water Composition and in Total Chloride Content at Different Levels of Cement Paste Plates under Different Storage Conditions	129
<b>M. Djuric, B. Zivanovic, Lj. Petrasinovic-Stojkanovic, J. Ranogajec:</b> Computerized Thermodynamic Analysis of Reactions during Sintering of $CaO-Al_2O_3-SiO_2$ System	139
<b>W.G. Piasta, U. Schneider:</b> Deformations and Elastic Modulus of Concrete under Sustained Compression and Sulphate Attack	149
<b>V. Sicard, R. Francois, E. Ringot, G. Pons:</b> Influence of Creep and Shrinkage on Cracking in High Strength Concrete	159
<b>D. Bonen, M.D. Cohen:</b> Magnesium Sulfate Attack on Portland Cement Paste. I. Microstructural Analysis	169
<b>C.M. Sangha, B.A. Plunkett, P.J. Walden, M.J. Al-Hussaini:</b> Sulphide Content Variability in Cement Pastes Containing Ground Granulated Blastfurnace Slag	181
<b>DISCUSSIONS</b>	
<b>N.P. Rajamane, R.S. Rajagopal, J. A. Peter, V.S. Parameswaran</b>	186
<b>H.T. Cao, V. Sirivivatnanon</b>	188
<b>S. Chatterji</b>	190
<b>H. Wang, J.E. Gillott</b>	193
<b>N.P. Rajamane, V.S. Parameswaran</b>	195
<b>NEW BOOKS</b>	197
<b>NEWS ITEMS</b>	198

## PART I. DURABILITY OF CEMENT AND CONCRETE IN THE REPOSITORY ENVIRONMENT

<b>F.P. Glasser:</b> Progress in the Immobilization of Radioactive Wastes in Cement	201
<b>L.O. Höglund:</b> Some Notes on Ettringite Formation in Cementitious Materials: Influence of Hydration and Thermodynamic Constraints for Durability	217
<b>D. Damidot, M. Atkins, A. Kindness, F.P. Glasser:</b> Sulphate Attack on Concrete: Limits of AFt Stability	229

<b>D. Létolle, P. Gégout, N. Rafai, E. Revertégat:</b> Stable Isotopes of Carbon and Oxygen for the Study of Carbonation/Decarbonation Processes in Concretes	235
<b>M. Atkins, F.P. Glasser, A. Kindness:</b> Cement Hydrate Phases: Solubility at 25 °C	241

## PART II. INTERACTIONS BETWEEN CEMENT, WASTE COMPONENTS AND GROUND WATER

<b>T.R. Holland, D.J. Lee:</b> Radionuclide Getters in Cement	247
<b>E. Revertégat, C. Richet, P. Gégout:</b> Effect of pH on the Durability of Cement Pastes	259
<b>C.J. Kertesz, S. Camaro:</b> Comparative Behaviour under External Gamma Irradiation of Ion Exchanger Waste Solidified into Epoxide or Epoxide Cement Matrices	273
<b>A. Ipatti:</b> Solidification of Ion-Exchange Resins with Alkali-Activated Blast-Furnace Slag	281
<b>G. Cochet:</b> Process for the Treatment and Embedment of Ion Exchange Resins with a Hydraulic Binder	287
<b>G.A. Fairhall, J.D. Palmer:</b> The Encapsulation of Magnox Swarf in Cement in the United Kingdom	293

## PART III. PROPERTIES AND PERFORMANCE OF CEMENT MATERIALS

<b>C.R. Wilding:</b> The Performance of Cement Based Systems	299
<b>N.K. Ghattas, S.B. Eskander, T.A. Bayoumi:</b> Improved Cement Barriers Applied in Nuclear Wastes	311
<b>G. Cochet, B. Cariou:</b> Very High Performance Micro-Concretes for the Confinement of Industrial Waste	319
<b>J.D. Palmer, G.A. Fairhall:</b> Properties of Cement Systems Containing Intermediate Level Wastes	325
<b>E. Zamorani, G. Brambilla, C. Serrini, N. Toussaint, E. Cazzaniga:</b> Particle Fabrication by Chemical Processing for Hazardous Waste Management	331
<b>D.P. Trivedi, R.G.G. Holmes, D. Brown:</b> Monitoring the In-situ Performance of a Cement/Bentonite Cut-off Wall at a Low Level Waste Disposal Site	339
<b>R. Pech:</b> Fibre Concrete Overpacks/Physico Chemical Characteristics: Cement and Fiber Characterization	351

## PART IV. LEACH BEHAVIOUR AND MECHANISMS

<b>E. Zamorani:</b> Deeds and Misdeeds of Cement Composites in Waste Management	359
<b>Ph. Boch, M. Seiss, G. Vetter, M. Jacquin:</b> High-Alumina Cement for Cesium Trapping	369
<b>H. Aalto, A. Ipatti:</b> Leach Test of Spent Ion Exchange Resins Solidified in Concrete	375
<b>T. Banba, J. Matsumoto, S. Muraoka:</b> Leaching Behavior of Carbon-14 in Portland Cement	381
<b>T. Nishi, M. Matsuda, K. Chino, M. Kikuchi:</b> Reduction of Cesium Leachability from Cementitious Resin Forms Using Natural Acid Clay and Zeolite	387
<b>F.D. Tamás, L.J. Csetényi:</b> Effect of Adsorbents on the Leachability of Cement Bonded Simulated Low Level Wastes from Nuclear Power Plants	393
<b>F.D. Tamás, L. Csetényi, J. Tritthart:</b> Effect of Adsorbents on the Leachability of Cement Bonded Electroplating Wastes	399

## PART V. DIFFUSIONAL PROPERTIES OF CEMENT AND CONCRETE, INCLUDING POROSITY-PERMEABILITY RELATIONSHIPS

<b>K. Brodersen, K. Nilsson:</b> Pores and Cracks in Cemented Waste and Concrete	405
<b>R. Atabek, P. Bouniol, P. Vitorge, P. Le Bescop, J.M. Hoorelbeke:</b> Cement Use for Radioactive Waste Embedding and Disposal Purposes	419
<b>P. Locoge, M. Massat, J.P. Ollivier, C. Richet:</b> Ion Diffusion in Micropacked Concrete	431
<b>F.A. Sarott, M.H. Bradbury, P. Pandolfo, P. Spieler:</b> Diffusion and Adsorption Studies on Hardened Cement Paste and the Effect of Carbonation on Diffusion Rates	439
<b>S.P. Teng, C.H. Lee:</b> Numerical Analysis of Through-Diffusion Experimental Results	445
<b>P. Gégout, E. Revertégat, G. Moine:</b> Action of Chloride Ions on Hydrated Cement Pastes: Influence of the Cement Type and Long Time Effect of the Concentration of Chlorides	451
<b>V. Balek, J. Dohnalek:</b> Radiometric Emanation Method for Monitoring Morphology and Porosity Changes During Radwaste Cementation	459

# **PART VI. THERMODYNAMICS OF CEMENTITIOUS SYSTEMS AND MODELLING OF CEMENT PERFORMANCE**

<b>U.R. Berner:</b> Thermodynamic Modelling of Cement Degradation: Impact of Redox Conditions on Radionuclide Release	465
<b>J.L. Seveque, M.D. de Cayeux, M. Elert, H. Noguier:</b> Mathematical Modelling of Radioactive Waste Leaching	477
<b>F. Adenot, M. Buil:</b> Modelling of the Corrosion of the Cement Paste by Deionized Water	489
<b>M. Atkins, D.G. Bennett, A.C. Dawes, F.P. Glasser, A. Kindness, D. Read:</b> A Thermodynamic Model for Blended Cements	497
<b>D.P. Ollivier, M. Massat:</b> Permeability and Microstructure of Concrete: A Review of Modelling	503

1992

Volume 22, Number 4

July

<b>S. Chandra, A. Xu:</b> Influence of Presaturation and Freeze-Thaw Test Conditions on Length Changes of Portland Cement Mortar	515
<b>S. Chatterji, M. Kawamura:</b> A Critical Reappraisal of Ion Diffusion Through Cement Based Materials. Part 1: Sample Preparation, Measurement Technique and Interpretation of Results	525
<b>W. Ma, P.W. Brown, D. Shi:</b> Solubility of $\text{Ca}(\text{OH})_2$ and $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ in the Liquid Phase from Hardened Cement Paste	531
<b>L. Tang, L.-O. Nilsson:</b> A Study of the Quantitative Relationship between Permeability and Pore Size Distribution of Hardened Cement Pastes	541
<b>B.G. Pye, J.J. Beaudoin:</b> An Energy Approach to Bond Strength Determinations in Cement Systems	551
<b>X.Z. Hu, F.H. Wittmann:</b> An Analytical Method to Determine the Bridging Stress Transferred within the Fracture Process Zone. II. Application to Mortar	559
<b>I.B. Plecas, A.D. Peric, J.D. Drljaca, A.M. Kostadinovic, S.D. Glodic:</b> Immobilization of Radioactive Waste Water Residues in a Cement Matrix	571
<b>P.R. Khangaonkar, A. Rahmat, K.G.J. Kutty:</b> Kinetic Study of the Hydrothermal Reaction between Lime and Rice-Husk-Ash Silica	577
<b>A. Roy, H.C. Eaton:</b> Solidification/Stabilization of a Synthetic Electroplating Waste in Lime-Fly Ash Binder	589
<b>P. Xie, J.J. Beaudoin:</b> Modification of Transition Zone Microstructure – Silica Fume Coating of Aggregate Surfaces	597
<b>S.L. Sarkar, X. Aimin:</b> Preliminary Study of Very Early Hydration of Superplasticized $\text{C}_3\text{A}$ +Gypsum by Environmental SEM	605
<b>M. Taguchi, S. Chatterji, M. Kawamura:</b> On the Specific Effect of Ions on the Rate of Alkali-Silica Reaction	609
<b>Y. Shen, Z. Xu, P. Xie, M. Tang:</b> A New Method of Enhancing Cement-Aggregate Interfaces. Ideal Aggregate and Its Effects on Interfacial Microstructures	612
<b>S. Wei, S.T. Mau, C. Vipulanandan:</b> Mechanical Behavior of Confined Polymer Concrete	621
<b>P. Xie, J.J. Beaudoin:</b> Mechanism of Sulphate Expansion. I. Thermodynamic Principle of Crystallization Pressure	631
<b>C.C. Weng, M.T. Tam, G.C. Lin:</b> Acoustic Emission Characteristics of Mortar under Compression	641
<b>K.C. Natesaiyer, K.C. Hover:</b> Chemical Agents for Reducing Solubility of Silica in 1N Sodium Hydroxide	653
<b>V.T. Yilmaz, A. Kindness, F.P. Glasser:</b> Determination of Sulphonated Naphthalene Formaldehyde Superplasticizer in Cement: A New Spectrofluorimetric Method and Assessment of the UV Method	663
<b>J. Havlicka, S. Sahu:</b> Mechanism of Ettringite and Monosulphate Formation	671
<b>S. Mindess, S. Diamond:</b> SEM Investigations of Fracture Surfaces Using Stereo Pairs: II. Fracture Surfaces of Rock-Cement Paste Composites Specimens	678
<b>J.J. Beaudoin, V.S. Ramachandran:</b> A New Perspective on the Hydration Characteristics of Cement Phases	689
<b>H. Zhao, D. Darwin:</b> Quantitative Backscattered Electron Analysis of Cement Paste	695

<b>D. Bonen, M.D. Cohen:</b> Magnesium Sulfate Attack on Portland Cement Paste. II. Chemical and Mineralogical Analyses	<b>707</b>
--	------------

## DISCUSSIONS

<b>J. Bensted</b>	<b>719</b>
<b>T. Nishikawa</b>	<b>721</b>

<b>NEWS ITEMS</b>	<b>722</b>
-------------------	------------

<b>OBITUARY — George L. Kalousek</b>	<b>724</b>
--------------------------------------	------------

1992

Volume 22, Number 5

September

<b>N.B. Singh, R. Sarvahi, N.P. Singh:</b> Effect of Superplasticizers on the Hydration of Cement	<b>725</b>
<b>P. Kittl, G. Diaz, H. Alarcon:</b> Dosification of a Cement-Talc-Chamotte Refractory Mortar Subjected to Thermal Shock	<b>736</b>
<b>G-C Lai, T. Nojiri, K-I. Nakano:</b> Studies of the Stability of $\beta$ -Ca <sub>2</sub> SiO <sub>4</sub> Doped by Minor Ions	<b>743</b>
<b>D.G. Montgomery, G. Wang:</b> Instant-Chilled Steel Slag Aggregate in Concrete - Fracture Related Properties	<b>755</b>
<b>S.A. Klink:</b> Cement and the Elastic Constants of Concrete	<b>761</b>
<b>Shen Yang, Xu Zhongzi, Xie Ping, Tang Mingshu:</b> A New Method of Enhancing Cement-Aggregate Interfaces. II. Mechanical Properties and Sulphate Attack Resistances of Mortars	<b>769</b>
<b>S. Chatterji, M. Kawamura:</b> Electrical Double Layer, Ion Transport and Reactions in Hardened Cement Paste	<b>774</b>
<b>T. Sugama, N.R. Carciello:</b> Carbonation of Hydrothermally Treated Phosphate-Bonded Calcium Aluminate Cements	<b>783</b>
<b>S. Giménez, S. Garcia, M.T. Blanco, A. Palomo:</b> The Behaviour of a Low Energy Cement in Na <sub>2</sub> SO <sub>4</sub> and Sea Water Media	<b>793</b>
<b>N. Banthia, S. Djeridane, M. Pigeon:</b> Electrical Resistivity of Carbon and Steel Micro-Fiber Reinforced Cements	<b>804</b>
<b>W. Pong, D. Yamamoto, T. Novinson:</b> A Study of Mechanism of Thermal Surface Deterioration of Refractories Using X-ray Photoelectron Spectroscopy	<b>815</b>
<b>C.D. Hills, L. Koe, C.J. Sollars, R. Perry:</b> Early Heat of Hydration during the Solidification of a Metal Plating Sludge	<b>822</b>
<b>Ping Gu, Ping Xie, J.J. Beaudoin, R. Brousseau:</b> A.C. Impedance Spectroscopy. I. A New Equivalent Circuit Model for Hydrated Portland Cement Paste	<b>833</b>
<b>Y. Erdogan, H. Genç, A. Demirbas:</b> Utilization of Borogypsum for Cement	<b>841</b>
<b>Xie Ping, J.J. Beaudoin:</b> Mechanism of Sulphate Expansion. II. Validation of Thermodynamic Theory	<b>845</b>
<b>A. Radocea:</b> A New Method for Studying Bleeding of Cement Paste	<b>855</b>
<b>C. Andrade, C. Alonso, M. Acha, B. Malric:</b> Preliminary Testing of Na <sub>2</sub> PO <sub>3</sub> F as a Curative Corrosion Inhibitor for Steel Reinforcements in Concrete	<b>869</b>
<b>N. Rafai, R. Létolle, P. Blanc, P. Gégout, E. Revertégat:</b> Carbonation-Decarbonation of Concretes Studied by the Way of Carbon and Oxygen Stable Isotopes	<b>882</b>
<b>D.P. Bentz, P.E. Stutzman, E.J. Garboczi:</b> Experimental and Simulation Studies of the Interfacial Zone in Concrete	<b>891</b>
<b>L. De Ceukelaire:</b> The Effects of Hydrochloric Acid on Mortar	<b>903</b>
<b>S.J. Way, A. Shayan:</b> Study of Some Synthetically Prepared Hydrous Alkali Calcium Silicates	<b>915</b>
<b>Y. Abdel-Jawad, R. Haddad:</b> Effect of Early Overloading of Concrete on Strength at Later Ages	<b>927</b>
<b>I. Plecas, A. Peric, A. Kostadinovic, J. Drljaca, S. Glodic:</b> Leaching Behavior of <sup>60</sup> Co and <sup>137</sup> Cs from Spent Ion Exchange Resins in Cement Matrix	<b>937</b>
<b>R. Dron, F. Brivot:</b> Thermodynamic and Kinetic Approach to the Alkali-Silica Reaction. Part I: Concepts	<b>941</b>
<b>D.M. Kerrick, R.D. Hooton:</b> ASR of Concrete Aggregate Quarried from a Fault Zone: Results and Petrographic Interpretation of Accelerated Mortar Bar Tests	<b>949</b>
<b>C. Lobo, M.D. Cohen:</b> Hydration of Type K Expansive Cement Paste and the Effect of Silica Fume: I. Expansion and Solid Phase Analysis	<b>961</b>



<b>N. Hearn, R.D. Hooton:</b> Sample Mass and Dimension Effects on Mercury Intrusion Porosimetry Results	<b>970</b>
<b>N.M.P. Low, J.J. Beaudoin:</b> Mechanical Properties of High Performance Cement Binders Reinforced with Wollastonite Micro-Fibres	<b>981</b>
<b>R.G. Sibbick, C.L. Page:</b> Threshold Alkali Contents for Expansion of Concretes Containing British Aggregates	<b>990</b>
<b>NEW BOOKS</b>	<b>995</b>
<b>NEWS ITEMS</b>	<b>997</b>

1992

Volume 22, Number 6

November

*A Festschrift Honoring Della M. Roy*

<b>A.J. Majumdar:</b> Preface	<b>iii</b>
<b>H.F.W. Taylor:</b> Della M. Roy - An Appreciation	<b>v</b>
<b>I.G. Richardson, G.W. Groves:</b> Models for the Composition and Structure of Calcium Silicate Hydrate (C-S-H) Gel in Hardened Tricalcium Silicate Pastes	<b>1001</b>
<b>S.L. Sarkar:</b> Microstructural Investigation of Renaissance Mortar from Montreal, Quebec, Canada	<b>1011</b>
<b>B. Singh, A.J. Majumdar:</b> The Hydration of Calcium Dialuminate and Its Mixtures Containing Slag	<b>1019</b>
<b>R.S. Gollop, H.F.W. Taylor:</b> Microstructural and Microanalytical Studies of Sulfate Attack. I. Ordinary Portland Cement Paste	<b>1027</b>
<b>G.M. Idorn:</b> Expansive Mechanisms in Concrete	<b>1039</b>
<b>C.D. Lawrence:</b> The Influence of Binder Type on Sulfate Resistance	<b>1047</b>
<b>D. Bonen, S. Diamond:</b> Occurrence of Large Silica Fume-Derived Particles in Hydrated Cement Paste	<b>1059</b>
<b>A. Neville:</b> Concrete Research on a Micro- and a Macro-Scale	<b>1067</b>
<b>L.J. Parrott:</b> Variations of Water Absorption Rate and Porosity with Depth from an Exposed Concrete Surface: Effects of Exposure Conditions and Cement Type	<b>1077</b>
<b>P.S. Mangat, J.M. El-Khatib:</b> Influence of Initial Curing on Sulphate Resistance of Blended Cement Concrete	<b>1089</b>
<b>A.J. Majumdar, B. Singh:</b> Properties of Some Blended High-Alumina Cements	<b>1101</b>
<b>H. Uchikawa, S. Hanehara, T. Shirasaka, D. Sawaki:</b> Effect of Admixture on Hydration of Cement, Adsorptive Behavior of Admixture and Fluidity and Setting of Fresh Cement Paste	<b>1115</b>
<b>Y. Chen, I. Odler:</b> On the Origin of Portland Cement Setting	<b>1130</b>
<b>G.G. Litvan:</b> The Effect of Sealers on the Freeze-Thaw Resistance of Mortar	<b>1141</b>
<b>U.H. Jakobsen, N. Thaulow, V. Johansen:</b> Analyses of Sodium- and Potassium-Rich Droplets Observed on the Surface of Alkali-Silica Reactive Aggregates and on Gel in Polished Thin Sections	<b>1148</b>
<b>A. Brückner, R. Lück, W. Wieker, A. Winkler, C. Andreae, H. Mehner:</b> Investigation of Redox Reactions Proceeding During the Hardening Process of Sulfide Containing Cement	<b>1161</b>
<b>B.A. Clark, A.J. Schwoeble, R.J. Lee, J. Skalny:</b> Detection of ASR in Opened Fractures of Damaged Concrete	<b>1170</b>
<b>D. Damidot, F.P. Glasser:</b> Thermodynamic Investigation of the $\text{CaO-Al}_2\text{O}_3\text{-CaSO}_4\text{-H}_2\text{O}$ System at 50 °C and 85 °C	<b>1179</b>
<b>W. Ma, P.W. Brown:</b> Mechanical Behavior and Microstructural Development in Phosphate Modified High Alumina Cement	<b>1192</b>
<b>C. Ouyang, S.P. Shah:</b> Toughening of High Strength Cementitious Matrix Reinforced by Discontinuous Short Fibers	<b>1201</b>
<b>S. Goto, K. Akazawa, M. Daimon:</b> Solubility of Silica-Alumina Gels in Different pH Solutions – Discussion on the Hydration of Slags and Fly Ashes in Cement	<b>1216</b>
<b>K.L. Scrivener:</b> The Effect of Heat Treatment on Inner Product C-S-H	<b>1224</b>
<b>NEWS ITEMS</b>	<b>1227</b>
<b>INDEX TO VOLUME 22</b>	<b>1229</b>
<b>KEYWORD INDEX</b>	<b>1235</b>
<b>AUTHOR INDEX</b>	<b>1237</b>

1993

Volume 23, Number 1

January

<b>T. Kosmac, G. Lahajnar, A. Sepe:</b> Proton NMR Relaxation Study of Calcium Aluminate Hydration Reactions	1
<b>M.A. Issa, A.M. Hammad:</b> Fractal Characterization of Fracture Surfaces in Mortar	7
<b>U. Schneider, E. Nägele:</b> Stress Corrosion of Cement Mortars in Ammoniumsulfate Solution	13
<b>F. Puertas, M.T. Blanco Varela, R. Dominguez:</b> Hydration of $4\text{CaO}\cdot\text{Al}_2\text{O}_3\cdot\text{Mn}_2\text{O}_3$ in the Absence and the Presence of Gypsum. A Comparative Study with the Hydration of $4\text{CaO}\cdot\text{Al}_2\text{O}_3\cdot\text{Fe}_2\text{O}_3$	20
<b>J.A. González, E. Otero, S. Feliu, W. López:</b> Initial Steps of Corrosion in the Steel/ $\text{Ca}(\text{OH})_2+\text{Cl}^-$ System: The Role of Heterogeneities on the Steel Surface and Oxygen Supply	33
<b>R.C. Sharma, N.K. Jain, S.N. Ghosh:</b> Semi-Theoretical Method for the Assessment of Reactivity of Fly Ashes	41
<b>M.I. Sánchez de Rojas, M.P. Luxán, M. Frías, N. García:</b> The Influence of Different Additions on Portland Cement Hydration Heat	46
<b>T. Taguchi, S. Chatterji, M. Kawamura:</b> A Comparison of Different Methods of Detection of Alkali-Silica Reactivity of Aggregates	55
<b>R.L. Goguel, D.A. St. John:</b> Chemical Identification of Portland Cements in New Zealand Concretes: I. Characteristic Differences Among New Zealand Cements in Minor and Trace Element Chemistry	59
<b>S. Huovinen:</b> Abrasion of Concrete Structures by Ice	69
<b>S. Mindess, C. Yan:</b> Perforation of Plain and Fibre Reinforced Concretes Subjected to Low-Velocity Impact Loading	83
<b>Roger Dron, Françoise Brivot:</b> Thermodynamic and Kinetic Approach to the Alkali-Silica Reaction. Part 2: Experiment	93
<b>C. Lobo, M.D. Cohen:</b> Hydration of Type K Expansive Cement Paste and the Effect of Silica Fume: II. Pore Solution Analysis and Proposed Hydration Mechanism	104
<b>E. Erdem, H. Ölmöz:</b> The Mechanical Properties of Supersulphated Cement Containing Phosphogypsum	115
<b>M. Moukwa, D. Youn, M. Hassanali:</b> Effects of Degree of Polymerization of Water Soluble Polymers on Concrete Properties	122
<b>I.G. Richardson, G.W. Groves:</b> The Incorporation of Minor and Trace Elements into Calcium Silicate Hydrate (C-S-H) Gel in Hardened Cement Pastes	131
<b>O.S.B. Al-Amoudi, M. Maslehuddin:</b> The Effect of Chloride and Sulfate Ions on Reinforcement Corrosion	139
<b>A.U. Nilsen, P.J.M. Monteiro:</b> Concrete: A Three Phase Material	147
<b>V.T. Yilmaz, M. Odabasoglu, H. İçbudak, H. Ölmöz:</b> The Degradation of Cement Superplasticizers in a High Alkaline Solution	152
<b>P. Gu, P. Xie, J.J. Beaudoin, R. Brousseau:</b> A.C. Impedance Spectroscopy. II. Microstructural Characterization of Hydrating Cement-Silica Fume Systems	157
<b>R. Rassem, H. Zanni-Théveneau, D. Heidemann, A.R. Grimmer:</b> Proton High Resolution Solid State NMR Study of $\text{C}_3\text{S}$ Hydration	169
<b>T. Matusinovic, N. Vrbos:</b> Alkali Metal Salts as Set Accelerators for High Alumina Cement	177
<b>Z. Xu, M. Tang, J.J. Beaudoin:</b> Relationships Between Composition, Structure and Mechanical Properties of Very Low Porosity Cementitious Systems	187
<b>C.D. Hills, C.J. Sollars, R. Perry:</b> Ordinary Portland Cement Based Solidification of Toxic Wastes: The Role of OPC Reviewed	196
<b>M. Singh, M. Garg:</b> Microstructure of Glass Fibre Reinforced Water Resistant Gypsum Binder Composites	213
<b>D. Damidot, F.P. Glasser:</b> Thermodynamic Investigation of the $\text{CaO}\cdot\text{Al}_2\text{O}_3\cdot\text{CaSO}_4\cdot\text{H}_2\text{O}$ System at 25 °C and the Influence of $\text{Na}_2\text{O}$	221
<b>R.C. Sharma, N.K. Jain:</b> An Indian Fly Ash with High Percentage of Cenospheres	239

## DISCUSSIONS

<b>C.A. White</b>	241
<b>C.M. Sangha, B.A. Plunkett, P.J. Walden, M.J. Al-Hussaini</b>	242

<b>NEWS ITEMS</b>	243
<b>LETTER TO THE EDITOR</b>	245

<b>L. Tang, L.-O. Nilsson:</b> Chloride Binding Capacity and Binding Isotherms of OPC Pastes and Mortars	247
<b>S.S. Seehra, S. Gupta, S. Kumar:</b> Rapid Setting Magnesium Phosphate Cement for Quick Repair of Concrete Pavements - Characterisation and Durability Aspects	254
<b>M.N. Muhamad, P. Barnes, C.H. Fentiman, D. Hausermann, H. Pollmann, S. Rashid:</b> A Time-Resolved Synchrotron Energy Dispersive Diffraction Study of the Dynamic Aspects of the Synthesis of Ettringite During Minepacking	267
<b>M.A. Schultz, L.J. Struble:</b> Use of Oscillatory Shear to Study Flow Behavior of Fresh Cement Paste	273
<b>R.L. Goguel, D.A. St. John:</b> Chemical Identification of Portland Cements in New Zealand Concretes. II. The Ca-Sr-Mn Plot in Cement Identification and the Effect of Aggregates	283
<b>J. Havlica, D. Roztočká, S. Sahu:</b> Hydration Kinetics of Calciumaluminate Phases in the Presence of Various Ratios of $\text{Ca}^{2+}$ and $\text{SO}_4^{2-}$ Ions in Liquid Phase	294
<b>C. Atzeni, L. Massidda, U. Sanna:</b> Dimensional Variations, Capillary Absorption and Freeze-Thaw Resistance of Repair Mortars Admixed with Polymers	301
<b>M. Brouxel:</b> The Alkali-Aggregate Reaction Rim: $\text{Na}_2\text{O}$ , $\text{SiO}_2$ , $\text{K}_2\text{O}$ and $\text{CaO}$ Chemical Distribution	309
<b>R. Gabrovsek, B. Kurbus, D. Mueller, W. Wieker:</b> Tobermorite Formation in the System $\text{CaO}$ , $\text{C}_3\text{S}$ - $\text{SiO}_2$ - $\text{Al}_2\text{O}_3$ - $\text{NaOH}$ - $\text{H}_2\text{O}$ under Hydrothermal Conditions	321
<b>L. Curtill, J. Gielly, M. Murat:</b> The Polarizing Microscope: A Tool of Interest for Investigation on Concrete: Application to Carbonation	329
<b>D. Breton, A. Carles-Gibergues, G. Ballivy, J. Grandet:</b> Contribution to the Formation Mechanism of the Transition Zone Between Rock-Cement Paste	335
<b>J. Desbrieres:</b> Cement Cake Properties in Static Filtration. Influence of Polymeric Additives on Cement Filter Cake Permeability	347
<b>P. Xie, P. Gu, Z. Xu, J.J. Beaudoin:</b> A Rationalized A.C. Impedance Model for Microstructural Characterization of Hydrating Cement Systems	359
<b>W. López, J.A. González:</b> Influence of the Degree of Pore Saturation on the Resistivity of Concrete and the Corrosion Rate of Steel Reinforcement	368
<b>Z. Xu, M. Tang, J.J. Beaudoin:</b> An Ideal Structural Model for Very Low Porosity Cementitious Systems	377
<b>A.A. Ikpong:</b> The Relationship Between the Strength and Non-Destructive Parameters of Rice Husk Ash Concrete	387
<b>J.E. Ash, M.G. Hall, J.I. Langford, M. Mellas:</b> Estimations of Degree of Hydration of Portland Cement Pastes	399
<b>T. Häkkinen:</b> The Influence of Slag Content on the Microstructure, Permeability and Mechanical Properties of Concrete. Part I. Microstructural Studies and Basic Mechanical Properties	407
<b>H. Poellmann, St. Auer, H.-J. Kuzel, R. Wenda:</b> Solid Solution of Ettringites: Part II: Incorporation of $\text{B}(\text{OH})_4^-$ and $\text{CrO}_4^{2-}$ in $3\text{CaO} \cdot \text{Al}_2\text{O}_3 \cdot 3\text{CaSO}_4 \cdot 32\text{H}_2\text{O}$	422
<b>A. Carles-Gibergues, F. Saucier, J. Grandet, M. Pigeon:</b> New-to-Old Concrete Bonding: Influence of Sulfates Type of New Concrete on Interface Microstructure	431
<b>L. De Ceukelaire, D. Van Nieuwenburg:</b> Accelerated Carbonation of a Blast-Furnace Cement Concrete	442
<b>H. Siedel, S. Hempel, R. Hempel:</b> Secondary Ettringite Formation in Heat Treated Portland Cement Concrete: Influence of Different W/C Ratios and Heat Treatment Temperatures	453
<b>Z. Xu, Y. Deng, X. Wu, M. Tang, J.J. Beaudoin:</b> Influence of Various Hydraulic Binders on Performance of Very Low Porosity Cementitious Systems	462
<b>S.J. Way, A. Shayan:</b> Synthesis and Characterisation of Crystalline Analogues of Alkali-Aggregate Reaction Products	471
<b>G.-K. Sun, J.F. Young:</b> Quantitative Determination of Residual Silica Fume in DSP Cement Pastes by $^{29}\text{Si}$ NMR	480
<b>M.U.K. Afridi, Y. Ohama, K. Demura, M.Z. Iqbal:</b> A Note on the Formation of $\text{Ca}(\text{OH})_2$ Crystals in Polymer-Modified Mortars	484

## DISCUSSIONS

<b>J. Bensted</b>	486
<b>J.J. Beaudoin, V.S. Ramachandran</b>	488

J. Bensted	489
Y. Erdogan, H. Genç, A. Demirbas	491
J. Bensted	493
D.W. Hobbs	495
R.G. Sibbick, C.L. Page	498
NEWS ITEMS	500

1993

Volume 23, Number 3

May

D.E. Macphee, C.J. Black, A.H. Taylor: Cements Incorporating Brown Coal Fly Ash from the Latrobe Valley Region of Victoria, Australia	507
T. Häkkinen: The Influence of Slag Content on the Microstructure, Permeability and Mechanical Properties of Concrete. Part 2. Technical Properties and Theoretical Examinations	518
P. Gu, Z. Xu, P. Xie, J.J. Beaudoin: Application of A.C. Impedance Techniques in Studies of Porous Cementitious Materials. (I) Influence of Solid Phase and Pore Solution on High Frequency Resistance	531
D. Bonen: A Microstructural Study of the Effect Produced by Magnesium Sulfate on Plain and Silica Fume-Bearing Portland Cement Mortars	541
R.K. Dhir, E.A. Byars: PFA Concrete: Permeation Properties of Cover to Steel Reinforcement	554
M.G. Alexander: Two Experimental Techniques for Studying the Effects of the Interfacial Zone between Cement Paste and Rock	567
J.E. Ash, M. Mellas: Application of Backscattered Electron Imaging to Concrete Materials	576
P. Gu, P. Xie, J.J. Beaudoin: Microstructural Characterization of the Transition Zone in Cement Systems by Means of A.C. Impedance Spectroscopy	581
A.M. Alshamsi, A.R. Sabouni, A.H. Bushlaibi: Influence of Set-Retarding Superplasticisers and Microsilica on Setting Times of Pastes at Various Temperatures	592
K. Fukuda, I. Maki: Orientation of Coherent Interphase Boundaries Formed by the $\alpha$ to $\alpha'$ <sub>H</sub> Phase Transition in Belite Crystals	599
V.T. Yilmaz, N. Menek, M. Odabasoglu: Quantitative Determination of Triethanolamine in Cements	603
M.L. Allan: Toughness of Reinforcement/Concrete Bond in Tensile Loading	609
H.A. Toutanji, T. El-Korchi, R.N. Katz, G.L. Leatherman: Behaviour of Carbon Fiber Reinforced Cement Composites in Direct Tension	618
P.S. de Silva, F.P. Glasser: Phase Relations in the System CaO-Al <sub>2</sub> O <sub>3</sub> -SiO <sub>2</sub> -H <sub>2</sub> O Relevant to Metakaolin — Calcium Hydroxide Hydration	627
H. Wu, E.W. Brooman: Study of Use of Ultrasound Technology to Prepare Polymer-Impregnated Concrete	640
G. Kakali, S. Tsivilis: The Effect of Intergrinding and Separate Grinding of Cement Raw Mix on the Burning Process	651
A. Benaissa, P. Morlier, C. Viguiet: Microstructure du Béton de Sable	663
P. Gu, Z. Xu, P. Xie, J.J. Beaudoin: An A.C. Impedance Spectroscopy Study of Micro-Cracking in Cement-Based Composites during Compressive Loading	675
C. Ewertson, P.E. Petersson: The Influence of Curing Conditions on the Permeability and Durability of Concrete. Results from a Field Exposure Test	683
S. Sahu, V. Tomková, J. Majling, J. Havlica: Influence of Particle Sizes of Individual Minerals on the Hydration Processes in the System C <sub>2</sub> S-C <sub>4</sub> A <sub>3</sub> $\bar{S}$ -C $\bar{S}$	693
R.G. Jäger, G. Esser, D. Knöfel: Development of Compressive Strength and Porosity of Some Regulated Set Cements (RSCS) Both Made from Rotary Kiln — and Laboratory Oven Clinker — Hydrated at 20 °C and 5 °C	700
M. Moukwa, B.G. Lewis, S.P. Shah, C. Ouyang: Effects of Clays on Fracture Properties of Cement-Based Materials	711
C. Andrade: Calculation of Chloride Diffusion Coefficients in Concrete from Ionic Migration Measurements	724

## DISCUSSIONS

J. Bensted	743
R. Dron	745
P. Xie, J.J. Beaudoin	747

<b>D. Bonen</b>	749
<b>Z. Hong, D. Darwin</b>	754
<b>NEWS ITEMS</b>	758
1993	Volume 23, Number 4
	July
<b>A.V. Saelta, B.A. Schrefler, R.V. Vitaliani:</b> The Carbonation of Concrete and the Mechanism of Moisture, Heat and Carbon Dioxide Flow Through Porous Materials	761
<b>M.Y.A. Mollah, T.R. Hess, Y.-N. Tsai, D.L. Cocker:</b> An FTIR and XPS Investigations of the Effects of Carbonation on the Solidification/Stabilization of Cement Based Systems-Portland Type V with Zinc	773
<b>K.K. Sagoe-Crentsil, F.P. Glasser:</b> "Green Rust," Iron Solubility and the Role of Chloride in the Corrosion of Steel at High pH	785
<b>C. Vipulanandan, S. Krishnan:</b> XRD Analysis and Leachability of Solidified Phenol-Cement Mixtures	792
<b>Ya.P. Ivanov, T.Tz. Roshavelov:</b> Flow Behaviour of Modified Cement Pastes	803
<b>X.-D. Cong, R.J. Kirkpatrick, S. Diamond:</b> $^{29}\text{Si}$ MAS NMR Spectroscopic Investigation of Alkali Silica Reaction Product Gels	811
<b>C. Shi, R.L. Day:</b> Acceleration of Strength Gain of Lime-Pozzolan Cements by Thermal Activation	824
<b>H. Akhter, F.K. Cartledge, A. Roy, M.E. Tittlebaum:</b> A Study of the Effects of Nickel Chloride and Calcium Chloride on Hydration of Portland Cement	833
<b>A. Volkwein:</b> The Capillary Suction of Water into Concrete and the Abnormal Viscosity of the Porewater	843
<b>Z. Xu, P. Gu, P. Xie, J.J. Beaudoin:</b> Application of A.C. Impedance Techniques in Studies of Porous Cementitious Materials. II: Relationship between ACIS Behavior and the Porous Microstructure	853
<b>N. Banthia, M. Mani:</b> Toughness Indices of Steel Fiber Reinforced Concrete at Sub-Zero Temperatures	863
<b>S.L. Sarkar, J. Beaulieu:</b> Microstructural Evaluation of a Concrete Overpass System during Rehabilitation	874
<b>T. Matusinovic, D. Curlin:</b> Lithium Salts as Set Accelerators for High Alumina Cement	885
<b>S.V.S. Rao, K.B. Lal, R.V. Amalraj:</b> Epoxy Modified Cements Cured with Catalytic Curing Agents for Fixation of Radioactive Waste	896
<b>N.M.P. Low, J.J. Beaudoin:</b> Flexural Strength and Microstructure of Cement Binders Reinforced with Wollastonite Micro-Fibres	905
<b>E.P. Mora, J. Payá, J. Monzó:</b> Influence of Different Sized Fractions of a Fly Ash on Workability of Mortars	917
<b>D. Penev, M. Kawamura:</b> Estimation of the Spacing and the Width of Cracks Caused by Shrinkage in the Cement-Treated Slab under Restraint	925
<b>M. Ichikawa, Y. Komukai:</b> Effect of Burning Conditions and Minor Components on the Color of Portland Cement Clinker	933
<b>M.-A. Simard, P.-C. Nkinamubanzi, C. Jolicoeur, D. Perraton, P.-C. Aitcin:</b> Calorimetry, Rheology and Compressive Strength of Superplasticized Cement Pastes	939
<b>Z. Xu, R.D. Hooton:</b> Migration of Alkali Ions in Mortar Due to Several Mechanisms	951
<b>A. Goldman, A. Bentur:</b> The Influence of Microfillers on Enhancement of Concrete Strength	962
<b>J.E. Gillott, H. Wang:</b> Improved Control of Alkali-Silica Reaction by Combined Use of Admixtures	973
<b>E. Gruszczinski, P.W. Brown, J.V. Bothe, Jr.:</b> The Formation of Ettringite at Elevated Temperature	981
<b>NOTES</b>	
<b>J. Bensted:</b> Use of Ferrophosphorus as a Heavyweight Additive for API Oil Well Cements	986
<b>K.C. Quillin, S.L. Duerden, A.J. Majumdar:</b> Formation of Zeolites in OPC-PFA Mixtures	991
<b>J. Bensted:</b> Use of Inductively Coupled Plasma Mass Spectrometry (ICPMS) for Heavy Metal Trace Analysis of API Class G OilWell Cement	993
<b>DISCUSSIONS</b>	
<b>H.F.W. Taylor</b>	995
<b>I.G. Richardson, G.W. Groves</b>	999



<b>R. Dron, F. Brivot</b>	<b>1001</b>
<b>S.J. Way, A. Shayan</b>	<b>1003</b>
<b>NEWS ITEMS</b>	<b>1004</b>
1993	Volume 23, Number 5
	September
<b>Editorial</b>	<b>iii</b>
<b>Z. Xu, P. Gu, P. Xie, J.J. Beaudoin:</b> Application of A.C. Impedance Techniques in Studies of Porous Cementitious Materials. (III): ACIS Behavior of Very Low Porosity Cementitious Systems	<b>1007</b>
<b>N.M.P. Low, J.J. Beaudoin:</b> Mechanical Properties and Microstructure of Cement Binders Reinforced with Synthesized Xonotlite Micro-Fibres	<b>1016</b>
<b>J. Bijen, R. van Selst:</b> Cement Equivalence Factors for Fly Ash	<b>1029</b>
<b>M. Deng, S.F. Han, Y.N. Lu, X.H. Lan, Y.L. Hu, M.S. Tang:</b> Deterioration of Concrete Structures Due to Alkali-Dolomite Reaction in China	<b>1040</b>
<b>R.E. Weyers, S.E. Herald, M.A. Feeney, S.F. How Lum, C. Bader, P.D. Cady:</b> A Field Method for Measuring the Chloride Content of Concrete	<b>1047</b>
<b>A. Rettel, R. Seydel, W. Gessner, J.P. Bayoux, A. Capmas:</b> Investigations on the Influence of Alumina on the Hydration of Monocalcium Aluminate at Different Temperatures	<b>1056</b>
<b>X. Cong, R.J. Kirkpatrick:</b> $^{17}\text{O}$ and $^{29}\text{Si}$ MAS NMR Study of $\beta\text{-C}_2\text{S}$ Hydration and the Structure of Calcium-Silicate Hydrates	<b>1065</b>
<b>I. Maki, S. Ito, T. Tanioka, Y. Ohno, K. Fukuda:</b> Clinker Grindability and Textures of Alite and Belite	<b>1078</b>
<b>A. Iob, H. Saricimen, S. Narasimhan, N.M. Abbas:</b> Spectroscopic and Microscopic Studies of a Commercial Concrete Water Proofing Material	<b>1085</b>
<b>J. Tritthart, K. Pettersson, B. Sorensen:</b> Electrochemical Removal of Chloride from Hardened Cement Paste	<b>1095</b>
<b>R.K. Dhir, M.R. Jones, A.E. Eighaly:</b> PFA Concrete: Exposure Temperature Effects on Chloride Diffusion	<b>1105</b>
<b>M. Deng, M.S. Tang:</b> Measures to Inhibit Alkali-Dolomite Reaction	<b>1115</b>
<b>W. Prince, R. Perami:</b> Mise en Evidence du Role Essentiel des Ions $\text{OH}^-$ dans les Reactions Alkali-Silice	<b>1121</b>
<b>W. López, J.A. González, C. Andrade:</b> Influence of Temperature on the Service Life of Rebars	<b>1130</b>
<b>I.L.H. Hansson, C.M. Hansson:</b> Electrochemical Extraction of Chlorides from Concrete. Part I — A Qualitative Model of the Process	<b>1141</b>
<b>G.A. Niklasson:</b> Adsorption on Fractal Structures: Applications to Cement Materials	<b>1153</b>
<b>F. Schmidt, F.S. Rostásy:</b> A Method for the Calculation of the Chemical Composition of the Concrete Pore Solution	<b>1159</b>
<b>S. Masse, H. Zanni, J. Lecourtier, J.C. Roussel, A. Rivereau:</b> $^{29}\text{Si}$ Solid State NMR Study of Tricalcium Silicate and Cement Hydration at High Temperature	<b>1169</b>
<b>W.J. McCarter, S. Barclay:</b> A Comparison of Two Methods for Resistivity Measurements on Repair Mortar for Cathodic Protection Systems	<b>1178</b>
<b>P. Barkakati, D. Bordoloi, S. Bandyopadhyay, U.C. Borah:</b> Physico-Chemical Characteristics of Cement Produced Using Sulphur Bearing Fuels in the Black Meal Process for Cement Manufacture	<b>1185</b>
<b>D. Damidot, F.P. Glasser:</b> Thermodynamic Investigation of the $\text{CaO-Al}_2\text{O}_3\text{-CaSO}_4\text{-K}_2\text{O-H}_2\text{O}$ System at 25 °C	<b>1195</b>
<b>J. Beretka, B. de Vito, L. Santoro, N. Sherman, G.L. Valenti:</b> Hydraulic Behaviour of Calcium Sulfoaluminate-Based Cements Derived from Industrial Process Wastes	<b>1205</b>
<b>V. Zivica:</b> Alkali-Silicate Admixture for Cement Composites Incorporating Pozzolan or Blast Furnace Slag	<b>1215</b>
<b>L. Konecny, S.J. Naqvi:</b> The Effect of Different Drying Techniques on the Pore Size Distribution of Blended Cement Mortars	<b>1223</b>
<b>A. Shayan:</b> Alkali Reactivity of Deformed Granitic Rocks: A Case Study	<b>1229</b>
<b>R. Talero, J. Palacios:</b> Influence of the Parameter "Specific Surface" in the Qualification as High, or Not, Sulphate Resistance of a Portland Cement	<b>1237</b>
<b>J. Bensted:</b> A Simple Retarder Response Test for Oilwell Cements at High Temperatures	<b>1245</b>
<b>NEWS ITEMS</b>	<b>1250</b>

1993

Volume 23, Number 6

November

## Editorial

iii

<b>H. Zhou, X. Wu, Z. Xu, M. Tang:</b> Kinetic Study on Hydration of Alkali-Activated Slag	1253
<b>M.J. Bradley, S.E. Wiberley:</b> Studies on the Effect of the Copper and Zinc Content in a Silica By-Product Material When Used in Mortar	1259
<b>Ch. Ftikos, Th. Philippou, J. Marinós:</b> A Study of the Effect of Some Factors Influencing Alinite Clinker Formation	1268
<b>H.T. Cao, L. Bucea, V. Sirivivatnanon:</b> Corrosion Rates of Steel Embedded in Cement Pastes	1273
<b>S.A. Marfil, P.J. Maiza:</b> Zeolite Crystallization in Portland Cement Concrete due to Alkali-Aggregate Reaction	1283
<b>S.K. Roy, L.K. Chye, D.O. Northwood:</b> Chloride Ingress in Concrete as Measured by Field Exposure Tests in the Atmospheric, Tidal and Submerged Zones of a Tropical Marine Environment	1289
<b>A. Jadrijevic:</b> Wet Sieve Analysis of Fresh Concrete — Correction Procedures	1307
<b>J.H.D. Hampton, M.D.A. Thomas:</b> Modelling Relationships between Permeability and Cement Paste Pore Microstructures	1317
<b>S. Sahu, J. Majling:</b> Phase Compatibility in the System $\text{CaO-SiO}_2\text{-Al}_2\text{O}_3\text{-Fe}_2\text{O}_3\text{-SO}_3$ Referred to Sulphoaluminate Belite Cement Clinker	1331
<b>A. Bascoul, E.H. Benaija, Y. Berthaud, J.M. Torrenti, Z. Zizi:</b> Analysis of Localization in Concrete Through Stereophotogrametry, Speckle Laser and Replica	1340
<b>J. Majling, S. Sahu, M. Vina, D.M. Roy:</b> Relationship Between Raw Mixture and Mineralogical Composition of Sulphoaluminate Belite Clinkers in the System $\text{CaO-SiO}_2\text{-Al}_2\text{O}_3\text{-Fe}_2\text{O}_3\text{-SO}_3$	1351
<b>S.E. Hussain, Rasheeduzzafar:</b> Effect of Temperature on Pore Solution Composition in Plain Cements	1357
<b>L.J. Struble, M.A. Schultz:</b> Using Creep and Recovery to Study Flow Behavior of Fresh Cement Paste	1369
<b>K.K. Sagoe-Crentsil, V.T. Yilmaz, F.P. Glasser:</b> Corrosion Inhibition of Steel in Concrete by Carboxylic Acids	1380
<b>C. Shi, R.L. Day:</b> Chemical Activation of Blended Cements Made with Lime and Natural Pozzolans	1389
<b>M. Deng, M. Tang:</b> Mechanism of Dedolomitization and Expansion of Dolomitic Rocks	1397
<b>T. Sugama, N.R. Carciello:</b> Carbonation of Calcium Phosphate Cements after Long-Term Exposure to $\text{Na}_2\text{CO}_3$ -Laden Water at 250 °C	1409
<b>D. Baweja, H. Roper, V. Sirivivatnanon:</b> Relationships Between Anodic Polarisation and Corrosion of Steel in Concrete	1418
<b>J. Desbrieres:</b> Cement Cake Properties in Static Filtration. On the Role of Fluid Loss Control Additives on the Cake Porosity	1431
<b>R.K. Dhir, M.R. Jones, M.J. McCarthy:</b> Quantifying Chloride-Induced Corrosion from Half-Cell Potential	1443
<b>Z.M. El-Shakra, V.S. Gopalaratnam:</b> Deflection Measurements and Toughness Evaluations for FRC	1455
<b>N.M.P. Low, J.J. Beaudoin:</b> The Effect of Wollastonite Micro-Fibre Aspect Ratio on Reinforcement of Portland Cement-Based Binders	1467
<b>M.S. Khan, M.E. Ayers:</b> Curing Requirements of Silica Fume and Fly Ash Mortars	1480
<b>NEWS ITEMS</b>	1491
<b>INDEX TO VOLUME 23</b>	1493
<b>KEYWORD INDEX</b>	1499
<b>AUTHOR INDEX</b>	1501

1994

Volume 24, Number 1

## COMMUNICATED PAPERS

<b>C.Z. Xiao, H.Z. Lian, X.L. Liu:</b> Analysis of Microstructure of Hardened Cement Paste by Finite Element Method	1
<b>S.E. Hussain, Rasheeduzzafar, A.S. Al-Gahtani:</b> Influence of Sulfates on Chloride Binding in Cements	8
<b>D.N. Winslow, M.D. Cohen, D.P. Bentz, K.A. Snyder, E.J. Garboczi:</b> Percolation and Pore Structure in Mortars and Concrete	25
<b>P. Gu, Y. Fu, P. Xie, J.J. Beaudoin:</b> A Method for Evaluating the Corrosion Potential of a Cement Slurry to Reinforcing Steel	38

<b>Ch. Ftikos, D. Kiatos:</b> The Effect of Chlorides on the Formation of Belite and Alinite Phase	49
<b>K. Kobayashi, K. Suzuki, Y. Uno:</b> Carbonation of Concrete Structures and Decomposition of C-S-H	55
<b>W. Prince, R. Perami, M. Espagne:</b> Une Nouvelle Approche du Mechanisme de la Reaction Alkali-Carbonate	62
<b>J. Duchesne, M.A. Bérubé:</b> The Effectiveness of Supplementary Cementing Materials in Suppressing Expansion due to ASR: Another Look at the Reaction Mechanisms. Part 1: Concrete Expansion and Portlandite Depletion	73
<b>A. Nielson:</b> Development of Alkali Silica Reactions in Concrete Structures with Time	83
<b>P. Gu, P. Xie, Y. Fu, J.J. Beaudoin:</b> A.C. Impedance Phenomena in Hydrating Cement Systems: Frequency Dispersion Angle and Pore Size Distribution	86
<b>P. Xie, P. Gu, Y. Fu, J.J. Beaudoin:</b> A.C. Impedance Phenomena in Hydrating Cement Systems: Detectability of the High Frequency Arc	89
<b>P. Gu, P. Xie, Y. Fu, J.J. Beaudoin:</b> A.C. Impedance Phenomena in Hydrating Cement Systems: The Drying-Rewetting Process	92
<b>M.D. Cohen, A. Goldman, W.-F. Chen:</b> The Role of Silica Fume in Mortar: Transition Zone versus Bulk Paste Modification	95

## REFEREED PAPERS

<b>A. Jarosinski:</b> Properties of Anhydrite Cement Obtained from Apatite Phosphogypsum	99
<b>M.Y.A. Mollah, T.R. Hess, D.L. Cocke:</b> Surface and Bulk Studies of Leached and Unleached Fly Ash Using XPS, SEM, EDS and FTIR Techniques	109
<b>M. Deng, M. Tang:</b> Formation and Expansion of Ettringite Crystals	119
<b>A.A. Klyusov:</b> 3CaO-SiO <sub>2</sub> Hydration under Decreased Temperatures	127
<b>X. Shen, S. Yan, X. Wu, M. Tang, L. Yang:</b> Immobilization of Simulated High Level Wastes into AASC Waste Form	133
<b>S.L. Mak, M.M. Attard, D.W.S. Ho, P. LeP. Darvall:</b> Cross-Sectional Strength Gradients in High Strength Concrete Columns	139
<b>L. Tong, N. Yang:</b> Hydration Products of Calcium Aluminoferrite in the Presence of Gypsum	150
<b>D. Li, X. Wu:</b> A Study on the Application of Vacuum Microwave Composite Dewatering Technique in Concrete Engineering	159
<b>Y. Abdel-Jawad, M. Al-Qudah:</b> The Combined Effect of Water and Temperature on the Strength of Sulfur Concrete	165
<b>T. Nishikawa, K. Suzuki:</b> Chemical Conversion of C-S-H in Concrete	176

## DISCUSSIONS

<b>D. Bonen</b>	183
<b>Z. Hong, D. Darwin</b>	186
<b>R. Le Roy, F. de Larrard</b>	189
<b>A.U. Nilsen, P.J.M. Monteiro</b>	194

<b>NEWS ITEMS</b>	199
-------------------	-----

1994

Volume 24, Number 2

## COMMUNICATED PAPERS

<b>H.T. Cao, L. Bucea, V. Sirivivatnanon:</b> Influence of Binder Type on Anodic Dissolution of Steel Embedded in Cement Pastes	203
<b>A. Katz, A. Bentur:</b> Mechanical Properties and Pore Structure of Carbon Fiber Reinforced Cementitious Composites	214
<b>J. Duchesne, M.A. Bérubé:</b> The Effectiveness of Supplementary Cementing Materials in Suppressing Expansion Due to ASR: Another Look at the Reaction Mechanisms. Part 2: Pore Solution Chemistry	221
<b>P. Gu, Y. Fu, P. Xie, J.J. Beaudoin:</b> Characterization of Surface Corrosion of Reinforcing Steel in Cement Paste by Low Frequency Impedance Spectroscopy	231
<b>V.A. Chio, P.J.M. Monteiro, L.A. Demsetz:</b> The Rheology of Fresh Cement Paste Containing Polysaccharide Gums	243

<b>N.M.P. Low, J.J. Beaudoin:</b> The Flexural Toughness and Ductility of Portland Cement-Based Binders Reinforced with Wollastonite Micro-Fibres	250
<b>I. Nerád, S. Sausová, L. Stevula:</b> The CaO-Al <sub>2</sub> O <sub>3</sub> -CaSO <sub>4</sub> -H <sub>2</sub> O System Equilibrium States	259
<b>Y. Fu, P. Xie, P. Gu, J.J. Beaudoin:</b> Characteristics of Shrinkage Compensating Expansive Cement Containing a Pre-Hydrated High Alumina Cement-Based Expansive Additive	267
<b>K.G. Babu, G.S.N. Rao:</b> Early Strength Behaviour of Fly Ash Concretes	277
<b>J. Bensted:</b> Effects of Storage Upon the Cementing Properties of Class G Oilwell Cement Plus 8% Bentonite Blends	285

## REFEREED PAPERS

<b>I. Masood, S.K. Agarwal:</b> Effect of Various Superplasticizers on Rheological Properties of Cement Paste and Mortars	291
<b>T.R. Naik, S.S. Singh, M.M. Hossain:</b> Abrasion Resistance of Concrete as Influenced by Inclusion of Fly Ash	303
<b>K.K. Sagoe-Crentsil, F.P. Glasser, V.T. Yilmaz:</b> Corrosion Inhibitors for Mild Steel: Stannous Tin (SnII) in Ordinary Portland Cement	313
<b>J.H. Chen, Y.Y. Wang, C.C. Wan, D.C. Liou:</b> MAS/NMR Studies of the Hydration Process of $\beta$ -C <sub>2</sub> S in the Presence of Chromium	319
<b>M.A. Issa, A.M. Hammad:</b> Assessment and Evaluation of Fractal Dimension of Concrete Fracture Surface Digitized Images	325
<b>E.L. Rayment, A.J. Majumdar:</b> Microanalysis of High-Alumina Cement Clinker and Hydrated HAC/Slag Mixtures	335
<b>P. Arjunan, A. Kumar:</b> Rapid Techniques for Determination of Free Lime and Free Magnesia in Cement Clinker and Portlandite in Hydrates	343
<b>A.M. Alshamsi:</b> Temperature Rise Inside Pastes During Hydration in Hot Climates	353
<b>K. Torii, M. Kawamura:</b> Effects of Fly Ash and Silica Fume on the Resistance of Mortar to Sulfuric Acid and Sulfate Attack	361

## DISCUSSIONS

<b>O.S.B. Al-Amoudi</b>	371
<b>D. Bonen</b>	373
<b>Z. Xu, S. Chandra</b>	375
<b>C. Andrade</b>	380
<b>J. Bensted</b>	385
<b>S.J. Way, A. Shayan</b>	387
<b>W. Ma, P.W. Brown, D. Shi</b>	389
<b>J. Bensted</b>	391
<b>J. Beretka, B. de Vito, L. Santoro, N. Sherman, G.L. Valenti</b>	393
<b>J. Bensted</b>	394
<b>W. Prince, R. Perami</b>	396

<b>NEWS ITEMS</b>	399
-------------------	-----

1994

Volume 24, Number 3

## COMMUNICATED PAPERS

<b>R. Francois, G. Arliguie, D. Bardy:</b> Electrode Potential Measurements of Concrete Reinforcement for Corrosion Evaluation	401
<b>L. Stevula, J. Madej, J. Kozánková, J. Madejová:</b> Hydration Products at the Blastfurnace Slag Aggregate — Cement Paste Interface	413
<b>K.J. Folliard, M. Ohta, E. Rathje, P. Collins:</b> Influence of Mineral Admixtures on Expansive Cement Mortars	424

<b>P. Gu, P. Xie, J.J. Beaudoin, C. Jolicoeur:</b> Investigation of the Retarding Effect of Superplasticizers on Cement Hydration by Impedance Spectroscopy and Other Methods	433
<b>A.S. El-Dieb, R.D. Hooton:</b> Evaluation of the Katz-Thompson Model for Estimating the Water Permeability of Cement-Based Materials from Mercury Intrusion Porosimetry Data	443
<b>J. Duchesne, M.A. Bérubé:</b> Evaluation of the Validity of the Pore Solution Expression Method from Hardened Cement Pastes and Mortars	456
<b>R.L. Day, C. Shi:</b> Effect of Initial Water Curing on the Hydration of Cements Containing Natural Pozzolan	463
<b>L. Curtil, M.F. Habita:</b> Study of the Alkali-Aggregate Reaction on Concrete Prisms	473
<b>J. Bensted:</b> Effect of Different Water Levels on the Properties of HSR Class G Cement	479
<b>G. Frigione, R. Sersale:</b> Blastfurnace Cement Mortars Manufactured with Fresh Granulated and Weathered Slags	483
<b>P. Paulini:</b> A Through Solution Model for Volume Changes of Cement Hydration	488
<b>I. Maki, T. Tanioka, S. Ito, K. Maeda, K. Fukuda:</b> Texture and Grindability of the Dust Component in Portland Cement Clinker	497

## REFEREED PAPERS

<b>S. Stürmer, A. Müller, J. Stark:</b> Hydration of $C_3A$ and $C_2(A,F)$ Separated from Sulphate-Resisting and White Portland Cement under Conditions of Normal Hardening and Heat Treatment	503
<b>F. Häußler, F. Eichhorn, H. Baumbach:</b> Small-Angle Neutron Scattering on Hardened Cement Paste and Various Substances for Hydration	514
<b>I. Masood, S.K. Agarwal, U.N. Sinha:</b> Effect of Various Admixtures on the Particle Size Distribution of Cement Determined with the Aid of Laser Particle Analyser	527
<b>M. Frias, M.I. Sánchez de Rojas, N. Garcia, M.P. Luxán:</b> Contribution of Toxic Elements: Hexavalent Chromium in Materials Used in the Manufacture of Cement	533
<b>A.M. Dunster, D.ap. Kendrick, J.R. Parsonage:</b> The Mechanism of Hardening and Hydration of White Portland Cement Admixed with Salicylaldehyde	542
<b>V. Pavlik:</b> Corrosion of Hardened Cement Paste by Acetic and Nitric Acids. Part I: Calculation of Corrosion Depth	551
<b>D. Damidot, S. Stronach, A. Kindness, M. Atkins, F.P. Glasser:</b> Thermodynamic Investigation of the $CaO-Al_2O_3-CaCO_3-H_2O$ Closed System at 25 °C and the Influence of $Na_2O$	563
<b>O.P. Shrivastava, S. Komarneni:</b> Cesium Selectivity of (Al+Na)-Substituted Tobermorite	573
<b>V.L. Bonavetti, E.F. Irassar:</b> The Effect of Stone Dust Content in Sand	580

## DISCUSSIONS

<b>J. Bensted</b>	591
<b>N.N. Jakobsen</b>	593
<b>J. Bensted</b>	595

<b>NEWS ITEMS</b>	597
<b>NEW BOOKS</b>	600

## COMMUNICATED PAPERS

<b>Y. Erdogan, A. Demirbas, H. Genc:</b> Partly-Refined Chemical By-Product Gypsums as Cement Additives	601
<b>R.E. Beddoe, K. Lang:</b> Effect of Moisture on Fractal Dimension and Specific Surface of Hardened Cement Paste by Small-Angle X-Ray Scattering	605
<b>P. Barkakati, D. Bordoloi, P.Ch. Borthakur:</b> Paddy Husk as Raw Material and Fuel for Making Portland Cement	613
<b>M. Kawamura, K. Takeuchi, A. Sugiyama:</b> Mechanisms of Expansion of Mortars Containing Reactive Aggregate in NaCl Solution	621
<b>N. Hearn, R.J. Detwiler, C. Sframeli:</b> Water Permeability and Microstructure of Three Old Concretes	633



<b>J.M. Torrenti, C. Boulay, C. Puch:</b> The Young's Modulus of Concrete Reconsidered	641
<b>N.M.P. Low, J.J. Beaudoin:</b> Mechanical Properties and Microstructure of High Alumina Cement-Based Binders Reinforced with Natural Wollastonite Micro-Fibres	650
<b>M.A. Mustafa, K.M. Yusof:</b> Atmospheric Chloride Penetration into Concrete in Semi-Tropical Marine Environment	661
<b>M.L. Allan, L.E. Kukacka:</b> Permeability and Microstructure of Plain and Polypropylene Fibre Reinforced Grouts	671
<b>P. Gu, Y. Fu, P. Xie, J.J. Beaudoin:</b> A Study of the Hydration and Setting Behaviour of OPC-HAC Pastes	682
<b>S. Igarashi, M. Kawamura:</b> Effects of a Size in Bundled Fibers on the Interfacial Zone Between the Fibers and the Cement Paste Matrix	695
<b>P. Xie, P. Gu, Y. Fu, J.J. Beaudoin:</b> A.C. Impedance Phenomena in Hydrating Cement Systems: Origin of the High Frequency Arc	704

#### REFEREED PAPERS

<b>C.D. Hills, C.J. Sollars, R. Perry:</b> Solidification of Hazardous Wastes Containing Cyanide	707
<b>M.M. Ali, S. Gopal, S.K. Handoo:</b> Studies on the Formation Kinetics of Calcium Sulphoaluminate	715
<b>P. Krstulovic, N. Kamenic, K. Popovic:</b> A New Approach in Evaluation of Filler Effect in Cement. I. Effect on Strength and Workability of Mortar and Concrete	721
<b>M.P. Luxán, M. Frías F. Dorrego:</b> Potential Expansion of Cement Mortars in the Presence of $K_2SO_4$ and Pozzolan	728
<b>J.G. Wang:</b> Sulfate Attack on Hardened Cement Paste	735
<b>A. Zmikić, R. Krstulovic:</b> Interaction of Ionic Species in Hydrated Cement with a Superplasticizer Admixture	743
<b>A.A. Kyi, B. Batchelor:</b> An Electrical Conductivity Method for Measuring the Effects of Additives on Effective Diffusivities in Portland Cement Pastes	752
<b>K. Kolakowski, W. De Preter, D. Van Gemert, L. Lamberts, F. Van Rickstal:</b> Low Shrinkage Cement Based Building Components	765
<b>M.V. Munoz, F.G. García, M.G. Rodríguez, M.C.G. Vilchez:</b> Influence of the Mineralogical Composition, Specific Surface Area and Strains — Crystallite Size of Alite on the Compressive Mechanical Strength of Portland Mortars. I. Clinkers of Low Tricalcium Aluminate Contents	776
<b>J. Monzó, J. Payá, E. Peris-Mora:</b> A Preliminary Study of Fly Ash Granulometric Influence on Mortar Strength	791

#### DISCUSSIONS

<b>W.G. Hime</b>	797
<b>W.G. Hime, S. Marusin</b>	798

<b>NEWS ITEMS</b>	799
-------------------	-----

#### COMMUNICATED PAPERS

<b>D. Knöfel, J.-F. Wang:</b> Properties of Three Newly Developed Quick Cements	801
<b>I.G. Richardson, A.R. Brough, G.W. Groves, C.M. Dobson:</b> The Characterization of Hardened Alkali-Activated Blast-Furnace Slag Pastes and the Nature of the Calcium Silicate Hydrate (C-S-H) Phase	813
<b>I. Petrov, E. Schlegel:</b> Application of Automatic Image Analysis for the Investigation of Autoclaved Aerated Concrete Structure	830
<b>D. Lange, H.M. Jennings, S.P. Shah:</b> Image Analysis Techniques for Characterization of Pore Structure of Cement-Based Materials	841
<b>A.S. El-Dieb, R.D. Hooton:</b> A High Pressure Triaxial Cell with Improved Measurement Sensitivity for Saturated Water Permeability of High Performance Concrete	854
<b>R. Frey, T. Balogh, G.L. Balázs:</b> Kinetic Method to Analyse Chloride Diffusion in Various Concretes	863
<b>N.M.P. Low, J.J. Beaudoin:</b> Stability of Portland Cement-Based Binders Reinforced with Natural Wollastonite Micro-Fibres	874
<b>R.J. Hand:</b> The Kinetics of Hydration of Calcium Sulphate Hemihydrate: A Critical Comparison of the Models in the Literature	885

- P. Raivio, L. Sarvaranta:** Microstructure of Fibre Mortar Composites under Fire Impact — Effect of Polypropylene and Polyacrylonitrile Fibres 896
- S. Chatterji:** Transportation of Ions Through Cement Based Materials. Part 1. Fundamental Equations and Basic Measurement Techniques 907

## REFEREED PAPERS

- T.R. Naik, S.S. Singh, M.M. Hossain:** Permeability of Concrete Containing Large Amounts of Fly Ash 913
- F. Guirado, S. Gali, J.S. Chinchon:** The Crystallography of  $CA_{1-x}F_x$  Using X-Ray Powder Diffraction Techniques 923
- P. Krstulovic, N. Kamenic, K. Popovic:** A New Approach in Evaluation of Filler Effect in Cement. II. The Effect of Filler Fineness and Blending Procedure 931
- A.N. Scian, E. Pereira:** Mechanochemical Activation of High Alumina Cements — Hydration and Thermomechanic Behaviour. II. 937
- R. Krstulovic, A. Zmikić, P. Dabić:** Examination of Reaction Between the NSF Superplasticizer and Cement 948
- D. Bonen, T.J. Johnson, S.L. Sarkar:** Characterization of Principal Clinker Minerals by FT-Raman Microspectroscopy 959
- A.M. Sharara, H. El-Didamony, E. Ebied, A. El-Aleem:** Hydration Characteristics of  $\beta$ - $C_2S$  in the Presence of Some Pozzolanic Materials 966
- B.J. Addis, M.B. Alexander:** Cement-Saturation and Its Effects on the Compressive Strength and Stiffness of Concrete 975
- F.A. Rodrigues, I. Joekes:** Water Reducing Agents of Low Molecular Weight: Suppression of Air Entrapment and Slump Loss by Addition of an Organic Solvent 987

## DISCUSSION

- J. Bensted** 993

- NEWS ITEMS** 995

1994

Volume 24, Number 6

## COMMUNICATED PAPERS

- F. de Larrard, T. Sedran:** Optimization of Ultra-High-Performance Concrete by the Use of a Packing Model 997
- S. Chatterji:** Transportation of Ions Through Cement Based Materials. Part 2. Adaptation of the Fundamental Equations and Relevant Comments 1010
- Y. Fu, P. Xie, P. Gu, J.J. Beaudoin:** Significance of Pre-Existing Cracks on Nucleation of Secondary Ettringite in Steam Cured Cement Paste 1015
- D.N. Winslow, J.M. Bukowski, J.F. Young:** The Early Evolution of the Surface of Hydrating Cement 1025
- S.-D. Wang, K.L. Scrivener, P.L. Pratt:** Factors Affecting the Strength of Alkali-Activated Slag 1033
- D.P. Bentz, P.E. Stutzman:** Evolution of Porosity and Calcium Hydroxide in Laboratory Concretes Containing Silica Fume 1044
- S. Chatterji:** Simultaneous Chloride Removal and Realkalinization of Old Concrete Structures 1051
- P. Gu, Y. Fu, P. Xie, J.J. Beaudoin:** Effect of Uneven Porosity Distribution in Cement Paste and Mortar on Reinforcing Steel Corrosion 1055
- S. Sahu, J. Majling:** Preparation of Sulphoaluminate Belite Cement from Fly Ash 1065
- C.A. Milanese, O.R. Batic:** Alkali Reactivity of Dolomitic Rocks from Argentina 1073
- Y. Fu, P. Gu, P. Xie, J.J. Beaudoin:** Development of Eigenstress Due to Drying Shrinkage in Hardened Portland Cement Pastes: Thermomechanical Analysis 1085
- M. Ichikawa, S. Ikeda, Y. Komukai:** Effect of Cooling Rate and  $Na_2O$  Content on the Character of the Interstitial Materials in Portland Cement Clinker 1092
- W.J. McCarter:** A Parametric Study of the Impedance Characteristics of Cement-Aggregate Systems During Early Hydration 1097

## REFEREED PAPERS

- C. Qian, H. Guo, M. Tang:** Mechanism of Mineral Admixture Suppressing Alkali-Silica Reaction: Part I. Corrosion Degree of Reactive Aggregate in Blended Cement Pastes and its Correlations with Expansion Value and Electric Resistance Change 1111
- M. Perez-Pena, B. Mobasher:** Mechanical Properties of Fiber Reinforced Lightweight Concrete Composites 1121
- C. Tashiro, K. Ikeda, Y. Inoue:** Evaluation of Pozzolanic Activity by the Electric Resistance Measurement Method 1133
- S. Diamond, S. Mindess:** SEM Investigations of Fracture Surfaces Using Stereo Pairs: III. Fracture Surfaces of Mortars 1140
- R.K. Vempati, A. Rao, T.R. Hess, D.L. Cocke, H.V. Lauer, Jr.:** Fractionation and Characterization of Texas Lignite Class 'F' Fly Ash by XRD, TGA, FTIR, and SFM 1153
- Y.F. Houst, F.H. Wittmann:** Influence of Porosity and Water Content on the Diffusivity of CO<sub>2</sub> and O<sub>2</sub> Through Hydrated Cement Paste 1165
- M.T. Blanco, S. Garcia, S. Giménez, A. Palomo, F. Puertas, T. Vázquez:** Studies about a Sulphate Resistant Cement. Influence of Admixtures 1177
- M. Tan, J. Lu, K. Wu:** The Toughness of Nylon Fibre Mats Laminated MDF Cement Composites 1185
- G.W. Groves, I.G. Richardson:** Microcrystalline Calcium Hydroxide in Pozzolanic Cement Pastes 1191

## NEWS ITEMS

1197

1994

Volume 24, Number 7

## COMMUNICATED PAPERS

- M.U.K. Afridi, Z.U. Chaudhary, Y. Ohama, K. Demura, M.Z. Iqbal:** Strength and Elastic Properties of Powdered and Aqueous Polymer-Modified Mortars 1199
- C. Andrade, M.A. Sanjuán, A. Recuero, O. Río:** Calculation of Chloride Diffusivity in Concrete from Migration Experiments, in Non-Steady-State Conditions 1214
- S. Chatterji:** Transportation of Ions Through Cement Based Materials. Part 3. Experimental Evidence for the Basic Equations and Some Important Deductions 1229
- S. Kumar, C.V.S. Kameswara Rao:** Effect of Sulfates on the Setting Time of Cement and Strength of Concrete 1237
- D. Trejo, P. Monteiro, G. Thomas, X. Wang:** Mechanical Properties and Corrosion Susceptibility of Dual-Phase Steel in Concrete 1245
- D.C. Hughes, N.L. Crossley:** Pore Structure Characterisation of GGBS/OPC Grouts Using Solvent Techniques 1255
- J. Elsen, N. Lens, J. Vyncke, T. Aarre, D. Quenard, V. Smolej:** Quality Assurance and Quality Control of Air Entrained Concrete 1267
- M.G. Alexander:** Effects of Aging on Mechanical Properties of the Interfacial Zone Between Cement Paste and Rock 1277
- X. Ye, N. Wang, S. Mindess:** Effect of Loading Rate and Support Conditions on the Mode of Failure of Prestressed Concrete Railroad Ties Subjected to Impact Loading 1286
- A.K. Tamimi:** The Effects of a New Mixing Technique on the Properties of the Cement Paste-Aggregate Interface 1299
- S. Ong, S. Diamond:** Measurement of Immediate ASR Expansion of Steam Cured Mortar Bars 1305
- X. Feng, X. Min, C. Tao:** Study on the Structure and Characteristic of Dicalcium Silicate with Quantum Chemistry Calculations 1311

## REFEREED PAPERS

- O. Batic, P. Maiza, J. Sota:** Alkali Silica Reaction in Basaltic Rocks — NBRI Method 1317
- C. Qian, H. Guo, X. Lan, M. Tang:** Mechanism of Mineral Admixture Suppressing Alkali-Silica Reaction: Part II. Retardation of the Transport of Na, K and OH Ions in Pore Structure Caused by Acidic Action of Mineral Admixture Particles in Matrix 1327

<b>M.T. Tam, C.C. Weng:</b> A Study of Acoustic Emission Characteristics of Fly Ash Cement Mortar Under Compression	1335
<b>R.S. Gollop, H.F.W. Taylor:</b> Microstructural and Microanalytical Studies of Sulfate Attack. II. Sulfate-Resisting Portland Cement: Ferrite Composition and Hydration Chemistry	1347
<b>P.J. Tumidajski, M.L. Thomson:</b> Influence of Cadmium on the Hydration of C <sub>3</sub> A	1359
<b>J.N. Enevoldsen, C.M. Hansson, B.B. Hope:</b> The Influence of Internal Relative Humidity on the Rate of Corrosion of Steel Embedded in Concrete and Mortar	1373
<b>X. Chen, R. Zou, X. Chen:</b> Kinetic Study of Ettringite Carbonation Reaction	1383
<b>S.H. Alsayed, M.A. Amjad:</b> Effect of Curing Conditions on Strength, Porosity, Absorptivity, and Shrinkage of Concrete in Hot and Dry Climate	1390
<b>NEWS ITEMS</b>	1399
<b>REPORT OF A CONFERENCE:</b> Advances in Cement and Concrete	1401

1994

Volume 24, Number 8

## COMMUNICATED PAPERS

<b>S. Goñi, Ma P. Lorenzo, J.L. Sagrera:</b> Durability of Hydrated Portland Cement with Copper Slag Addition in NaCl+Na <sub>2</sub> SO <sub>4</sub> Medium	1403
<b>J. Neubauer, H. Pöllmann:</b> Alinite-Chemical Composition, Solid Solution and Hydration Behaviour	1413
<b>A.U. Nilsen, P.J.M. Monteiro, O.E. Gjorv:</b> Quality Assessment of Light Weight Aggregate	1423
<b>Y. Fu, P. Xie, P. Gu, J.J. Beaudoin:</b> Effect of Temperature on Sulphate Adsorption/Desorption by Tricalcium Silicate Hydrates	1428
<b>A. Delagrave, M. Pigeon, É. Revertégat:</b> Influence of Chloride Ions and pH Level on the Durability of High Performance Cement Pastes	1433
<b>Ch. Malami, V. Kaloidas, G. Batis, N. Kouloumbi:</b> Carbonation and Porosity of Mortar Specimens with Pozzolanic and Hydraulic Cement Admixtures	1444
<b>D. Ravina, I. Soroka:</b> Slump Loss and Compressive Strength of Concrete Made with WRR and HRWR Admixtures and Subjected to Prolonged Mixing	1455
<b>J. Wang, R.K. Dhir, M. Levitt:</b> Membrane Curing of Concrete: Moisture Loss	1463
<b>V. Živica, V. Szabo:</b> The Behaviour of Cement Composite Under Compression Load at Sulphate Attack	1475
<b>R.L. Day, C. Shi:</b> Influence of the Fineness of Pozzolan on the Strength of Lime Natural-Pozzolan Cement Pastes	1485
<b>M.U.K. Afridi, Z.U. Chaudhary, Y. Ohama, K. Demura, M.Z. Iqbal:</b> Effects of Polymer Modification on the Formation of High Sulphoaluminate or Ettringite-Type (AFt) Crystals in Polymer-Modified Mortars	1492

## REFEREED PAPERS

<b>V. Pavlík:</b> Corrosion of Hardened Cement Paste by Acetic and Nitric Acids. Part II: Formation and Chemical Composition of the Corrosion Products Layer	1495
<b>S. Hu:</b> XPS Nondestructive Depth Analysis Method and its Application in Cement Based Composite Materials	1509
<b>C.J. Warren, E.J. Reardon:</b> The Solubility of Ettringite at 25 °C	1515
<b>J.N. Enevoldsen, C.M. Hansson, B.B. Hope:</b> Binding of Chloride in Mortar Containing Admixed or Penetrated Chlorides	1525
<b>T. Zhang, O.E. Gjorv:</b> An Electrochemical Method for Accelerated Testing of Chloride Diffusivity in Concrete	1534
<b>J.O. Odigüre:</b> Hydration of Cement Paste and Concrete from Raw Mix Containing Metallic Particles	1549
<b>X. Lin, M.R. Silsbee, D.M. Roy, K. Kessler, P.R. Blankenhorn:</b> Approaches to Improve the Properties of Wood Fiber Reinforced Cementitious Composites	1558

## DISCUSSIONS

S. Chatterji	1567
D.N. Winslow, M.D. Cohen, D.P. Bentz, K.A. Snyder, E.J. Garboczi	1569
S. Chatterji	1572
J. Duchesne, M.A. Bérubé	1574
S. Chatterji	1577
J. Duchesne, M.A. Bérubé	1579
D. Constantiner	1582
M. Deng, M. Tang	1584

NEWS ITEMS	1587
INDEX TO VOLUME 24	1589
KEYWORD INDEX	1597
AUTHOR INDEX	1600

1995

Volume 25, Number 1

January

EDITORIAL	iii
-----------	-----

## COMMUNICATED PAPERS

S. Kumar, C.V.S. Kameswara Rao: Sulfate Attack on Concrete in Simulated Cast-in-Situ and Precast Situations	1
S. Tsivilis, G. Parissakis: A Mathematical Model for the Prediction of Cement Strength	9
C. Shi, R.L. Day: Acceleration of the Reactivity of Fly Ash by Chemical Activation	15
D. Damidot, F.P. Glasser: Investigation of the CaO-Al <sub>2</sub> O <sub>3</sub> -SiO <sub>2</sub> -H <sub>2</sub> O System at 25 °C by Thermodynamic Calculations	22
Y. Fu, P. Gu, P. Xie, J.J. Beaudoin: Effect of Chemical Admixtures on the Expansion of Shrinkage-Compensating Cement Containing a Pre-Hydrated High Alumina Cement-Based Expansive Additive	29
S. Martínez-Ramírez, F. Puertas, M.T. Blanco Varela: Carbonation Process and Properties of a New Lime Mortar with Added Sepiolite	39
S. Chatterji: Mechanism of Expansion of Concrete Due to the Presence of Dead-Burnt CaO and MgO	51
S. Kumar, C.V.S. Kameswara Rao: Strength Loss in Concrete Due to Varying Sulfate Exposures	57
Y. Fu, P. Gu, P. Xie, J.J. Beaudoin: A Kinetic Study of Delayed Ettringite Formation in Hydrated Portland Cement Paste	63
F. Bakula, V. Kaucic: The Study of Autoclaved Cellulose Fiber-Reinforced Cement Composites	71
G. Kakali, G. Parissakis: Investigation of the Effect of Zn Oxide on the Formation of Portland Cement Clinker	79
M.M. Ali, S.K. Agarwal, S. Agarwal, S.K. Handoo: Kinetics and Diffusion Studies in BaAl <sub>2</sub> O <sub>4</sub> Formation	86

## REFEREED PAPERS

T. Sugama, N.R. Carciello: Sodium Phosphate-Derived Calcium Phosphate Cements	91
S. Salvador: Pozzolanic Properties of Flash-Calcined Kaolinite: A Comparative Study with Soak-Calcined Products	102
N. Sherman, J. Beretka, L. Santoro, G.L. Valenti: Long-Term Behaviour of Hydraulic Binders Based on Calcium Sulfoaluminate and Calcium Sulfosilicate	113
E. Sakai, J. Sugita: Composite Mechanism of Polymer Modified Cement	127
C.K.Y. Leung, T. Pheeraphan: Very High Early Strength of Microwave Cured Concrete	136
D. Winslow, J.M. Bukowski, J.F. Young: The Fractal Arrangement of Hydrated Cement Paste	147
O.M. Jensen: Thermodynamic Limitation of Self-Desiccation	157
P. Simeonov, S. Ahmad: Effect of Transition Zone on the Elastic Behavior of Cement-Based Composites	165
F.P. Zhou, F.D. Lydon, B.I.G. Barr: Effect of Coarse Aggregate on Elastic Modulus and Compressive Strength of High Performance Concrete	177
D. Bjegovic, V. Krstic, D. Mikulic, V. Ukrainczyk: C-D-c-t Diagrams for Practical Design of Concrete Durability Parameters	187



<b>M.R. Jones, R.K. Dhir, J.P. Gill:</b> Concrete Surface Treatment: Effect of Exposure Temperature on Chloride Diffusion Resistance	197
--	-----

<b>R.P. Khatri, V. Sirivivatnanon, W. Gross:</b> Effect of Different Supplementary Cementitious Materials on Mechanical Properties of High Performance Concrete	209
---	-----

## DISCUSSIONS

<b>J. Bensted</b>	221
<b>P. Gu, Y. Fu, P. Xie, J.J. Beaudoin</b>	223
<b>M.J. Ridge</b>	224
<b>R.J. Hand</b>	225

<b>NEWS ITEMS</b>	227
-------------------	-----

<b>NEW BOOKS</b>	229
------------------	-----

1995

Volume 25, Number 2

February

## COMMUNICATED PAPERS

<b>U.P. Inozemtsev:</b> Cement Paste and Concrete Hardening Under Strain: I. Cement Paste Research	231
--	-----

<b>J. Bensted:</b> S-Curve Effect in Oilwell Cement Compressive Strength Development Under Hydrothermal Conditions	240
--	-----

<b>N. Isu, H. Ishida, T. Mitsuda:</b> Influence of Quartz Particle Size on the Chemical and Mechanical Properties of Autoclaved Aerated Concrete. (I) Tobermorite Formation	243
---	-----

<b>N. Isu, S. Teramura, H. Ishida, T. Mitsuda:</b> Influence of Quartz Particle Size on the Chemical and Mechanical Properties of Autoclaved Aerated Concrete. (II) Fracture Toughness, Strength and Micropore	249
--	-----

<b>F. Schmidt-Döhl, F.S. Rostásy:</b> Crystallization and Hydration Pressure or Formation Pressure of Solid Phases	255
--	-----

<b>J.A. González, C. Andrade, C. Alonso, S. Feliu:</b> Comparison of Rates of General Corrosion and Maximum Pitting Penetration on Concrete Embedded Steel Reinforcement	257
--	-----

<b>M. Oriol, J. Pera:</b> Pozzolanic Activity of Metakaolin Under Microwave Treatment	265
---	-----

<b>M.U.K. Afridi, Z.U. Chaudhary, Y. Ohama, K. Demura, M.Z. Iqbal:</b> Morphological Characterization of Low Sulphoaluminate-Type (AFm) Crystals, Hollow Tubules and Hollow Crystals in Polymer-Modified Mortars	271
--	-----

<b>A.U. Nilsen, P.J.M. Monteiro, O.E. Gjorv:</b> Estimation of the Elastic Moduli of Lightweight Aggregate	276
--	-----

<b>E. Tazawa, S. Miyazawa:</b> Influence of Cement and Admixture on Autogenous Shrinkage of Cement Paste	281
--	-----

<b>E. Tazawa, S. Miyazawa, T. Kasai:</b> Chemical Shrinkage and Autogenous Shrinkage of Hydrating Cement Paste	288
--	-----

<b>A. Lamontagne, M. Pigeon:</b> The Influence of Polypropylene Fibers and Aggregate Grading on the Properties of Dry-Mix Shotcrete	293
---	-----

<b>S. Chatterji:</b> On the Applicability of Fick's Second Law to Chloride Ion Migration Through Portland Cement Concrete	299
---	-----

<b>I.B. Topçu:</b> The Properties of Rubberized Concretes	304
---	-----

<b>I. Plecas, A. Peric, J. Drljaca, S. Glodic, A. Kostadinovic:</b> Effect of Curing Time on the Fraction of $^{60}\text{Co}$ and $^{137}\text{Cs}$ Leached from Cement Matrix	311
--	-----

<b>I. Plecas, A. Peric, S. Glodic, A. Kostadinovic:</b> Comparative Leaching Studies of $^{60}\text{Co}$ from Spent Radioactive Ion-Exchange Resin Incorporated in Cement	314
---	-----

## REFEREED PAPERS

<b>K. van Breugel:</b> Numerical Simulation of Hydration and Microstructural Development in Hardening Cement-Based Materials. (I) Theory	319
--	-----

<b>M. Singh, M. Garg:</b> Activation of Gypsum Anhydrite-Slag Mixtures	332
--	-----

<b>H.B. Arceo, F.P. Glasser:</b> Fluxing Reactions of Sulfates and Carbonates in Cement Clinkering. II. The System $\text{CaCO}_3\text{-K}_2\text{CO}_3$	339
--	-----

<b>M.G. Alexander, S. Mindess:</b> Use of Chevron-Notched Cylindrical Specimens for Paste/Rock Interface Experiments	345
<b>H. Uchikawa, D. Sawaki, S. Hanehara:</b> Influence of Kind and Added Timing of Organic Admixture on the Composition, Structure and Property of Fresh Cement Paste	353
<b>A. Durekovic:</b> Cement Pastes of Low Water to Solid Ratio: An Investigation of the Porosity Characteristics Under the Influence of a Superplasticizer and Silica Fume	365
<b>M.L. Escudero, A. Macías:</b> Corrosion of Reinforcing Steel in Mortar of Cement with $\text{CaF}_2$ as a Minor Component	376
<b>N. Ay, I.B. Topçu:</b> The Influence of Silicoferrochromium Fume on Concrete Properties	387
<b>D. Bonen, K.H. Khayat:</b> Characterization and Pozzolan Properties of Silica Fume Stored in an Open Pond	395
<b>B. Cotterell, Y.-W. Mai, K.Y. Lam:</b> Statistics and Size Effect in Cementitious Materials	408
<b>W. Ma, C. Liu, P.W. Brown, S. Komarneni:</b> Pore Structures of Fly Ashes Activated by $\text{Ca}(\text{OH})_2$ and $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$	417
<b>J. Bensted, G.J. Audley, P.N. Aukett:</b> Studies of Early Hydration with Class G Oilwell Cement Using Heatflow Conduction Calorimetry	426
<b>M. Frías, M.I.S. Rojas:</b> Determination and Quantification of Total Chromium and Water Soluble Chromium Contents in Commercial Cements	433
<b>M. Deng, D. Hong, X. Lan, M. Tang:</b> Mechanism of Expansion in Hardened Cement Pastes with Hard-Burnt Free Lime	440
<b>J. Payá, J. Monzó, E. Peris-Mora, M.V. Borrachero, R. Tercero, C. Pinillos:</b> Early-Strength Development of Portland Cement Mortars Containing Air Classified Fly Ashes	449
<b>NEWS ITEMS</b>	457

1995

Volume 25, Number 3

April

## COMMUNICATED PAPERS

<b>N.B. Singh, K.N. Bhattacharjee, A.K. Shukla:</b> Pond Ash — A Potential Reactive Raw Material in the Black Meal Process of Cement Manufacture by Vertical Shaft Kiln (VSK) Technology	459
<b>P. Chen, D.D.L. Chung:</b> Effect of Polymer Addition on the Thermal Stability and Thermal Expansion of Cement	465
<b>L. Tong, M. Tang:</b> Correlation Between Reaction and Expansion of Alkali-Carbonate Reaction	470
<b>V. Kasselouri, G. Dimopoulos, G. Parissakis:</b> Effect of Acetic and Tartaric Acid Upon the Thermal Decomposition of $\text{CaCO}_3$	477
<b>H.H. Patel, C.H. Bland, A.B. Poole:</b> The Microstructure of Concrete Cured at Elevated Temperatures	485
<b>P. Chen, X. Fu, D.D.L. Chung:</b> Improving the Bonding Between Old and New Concrete by Adding Carbon Fibers to the New Concrete	491
<b>H. Harmuth:</b> Investigation of the Adherence and the Fracture Behaviour of Polymer Cement Concrete	497
<b>L.M. Saija:</b> Waterproofing of Portland Cement Mortars with a Specially Designed Polyacrylic Latex	503

## REFEREED PAPERS

<b>M.L. Allan, L.E. Kukacka:</b> Strength and Durability of Polypropylene Fibre Reinforced Grouts	511
<b>K. van Breugel:</b> Numerical Simulation of Hydration and Microstructural Development in Hardening Cements-Based Materials. (II) Applications	522
<b>M.N. Haque, O.A. Kayyali:</b> Free and Water Soluble Chloride in Concrete	531
<b>F.P. Zhou, B.I.G. Barr, F.D. Lydon:</b> Fracture Properties of High Strength Concrete with Varying Silica Fume Content and Aggregates	543
<b>N. Retta:</b> Studies on Portland Pozzolana Cements Containing Endod, a Soap Berry Plant	553
<b>S.D. Wang, K.L. Scrivener:</b> Hydration Products of Alkali Activated Slag Cement	561
<b>F. Puertas, M.T.B. Varela, S.G. Molina:</b> Kinetics of the Thermal Decomposition of $\text{C}_4\text{A}_3\text{S}$ in Air	572
<b>A.K. Suryavanshi, J.D. Scantlebury, S.B. Lyon:</b> The Binding of Chloride Ions by Sulphate Resistant Portland Cement	581
<b>G. De Schutter, L. Taerwe:</b> General Hydration Model for Portland Cement and Blast Furnace Slag Cement	593
<b>D. Darwin, M.N. Abou-Zeid, K.W. Ketcham:</b> Automated Crack Identification for Cement Paste	605

<b>O. Peterson:</b> Chemical Effects of Cement Mortar of Calcium Magnesium Acetate as a Deicing Salt	617
<b>Y. Cao, R.J. Detwiler:</b> Backscattered Electron Imaging of Cement Pastes Cured at Elevated Temperatures	627
<b>S.M. Clark, P. Barnes:</b> A Comparison of Laboratory Synchrotron and Neutron Diffraction for the Real Time Study of Cement Hydration	639
<b>M.J. Shannag, A. Yeginobali:</b> Properties of Pastes, Mortars and Concretes Containing Natural Pozzolan	647
<b>J.K. Solem-Tishmack, G.J. McCarthy, B. Docktor, K.E. Eylands, J.S. Thompson, D.J. Hassett:</b> High-Calcium Coal Combustion By-Products: Engineering Properties, Ettringite Formation, and Potential Application in Solidification and Stabilization of Selenium and Boron	658
<b>M.Y.A. Mollah, P. Palta, T.R. Hess, R.K. Vempati, D.L. Cocke:</b> Chemical and Physical Effects of Sodium Lignosulfonate Superplasticizer on the Hydration of Portland Cement and Solidification/Stabilization Consequences	671

<b>NEWS ITEMS</b>	683
-------------------	-----

1995

Volume 25, Number 4

May

**COMMUNICATED PAPERS**

<b>C. Bojadjieva, I. Glavchev:</b> Investigation of the Influence of Some Plasticizers of Gypsum-Free Cement Paste	685
<b>X. Fu, D.D.L. Chung:</b> Carbon Fiber Reinforced Mortar as an Electrical Contact Material for Cathodic Protection	689
<b>D. Tang, L.-O. Nilsson:</b> A New Approach to the Determination of Pore Distribution by Penetrating Chlorides into Concrete	695
<b>G. Markeset, A. Hillerborg:</b> Softening of Concrete in Compression — Localization and Size Effects	702
<b>T.H. Wee, Y. Matsunaga, Y. Watanabe, E. Sakai:</b> Production and Properties of High Strength Concretes Containing Various Mineral Admixtures	709
<b>T.H. Wee, Y. Matsunaga, Y. Watanabe, E. Sakai:</b> Microstructure and Strength Properties of High Strength Concretes Containing Various Mineral Admixtures	715
<b>V. Kasselouri, Ch. Ftikos:</b> The Effect of $V_2O_5$ on the $C_3S$ and $C_3A$ Formation	721

**REFEREED PAPERS**

<b>C. Andrade, J.M. Diez, A. Alamán, C. Alonso:</b> Mathematical Modelling of Electrochemical Chloride Extraction from Concrete	727
<b>B. Bourdette, E. Ringot, J.P. Ollivier:</b> Modelling of the Transition Zone Porosity	741
<b>M. Singh, M. Garg:</b> Phosphogypsum-Fly Ash Cementitious Binder — Its Hydration and Strength Development	752
<b>J. Torii, K. Taniguchi, M. Kawamura:</b> Sulfate Resistance of High Fly Ash Content Concrete	759
<b>L. Zheng, D. Winslow:</b> Sub-Distributions of Pore Size: A New Approach to Correlate Pore Structure with Permeability	769
<b>S.P. Jiang, J.C. Mutin, A. Nonat:</b> Studies on Mechanism and Physico-Chemical Parameters at the Origin of the Cement Setting. I. The Fundamental Processes Involved During the Cement Setting	779
<b>P. Halamickova, R.J. Detwiler, D.P. Bentz, E.J. Garboczi:</b> Water Permeability and Chloride Ion Diffusion in Portland Cement Mortars: Relationship to Sand Content and Critical Pore Diameter	790
<b>M. Saito, H. Ishimori:</b> Chloride Permeability of Concrete Under Static and Repeated Compressive Loading	803
<b>A. Müller, C. Fuhr, D. Knöfel:</b> Frost Resistance of Cement Mortars with Different Lime Contents	809
<b>V.T. Ngala, C.L. Page, L.J. Parrott, S.W. Yu:</b> Diffusion in Cementitious Materials: II. Further Investigations of Chloride and Oxygen Diffusion in Well-Cured OPC and OPC/30% PFA Pastes	819
<b>J. Elsen, N. Lens, T. Aarre, D. Quenard, V. Smolej:</b> Determination of the W/C Ratio of Hardened Cement Paste and Concrete Samples of Thin Sections Using Automated Image Analysis Techniques	827
<b>I. Maki, K. Fukuda, T. Imura, H. Yoshida, S. Ito:</b> Formation of Belite Clusters from Quartz Grains in Portland Cement Clinker	835
<b>R. Goguel:</b> Alkali Release by Volcanic Aggregates in Concrete	841
<b>I. Odler, Y. Chen:</b> Effect of Cement Composition on the Expansion of Heat-Cured Cement Pastes	853
<b>I. Maki, K. Fukuda, E. Oba, H. Yoshida, M. Mitsumatsu, S. Ito:</b> Anisotropic Light Absorption of the Calcium Aluminoferrite Phase in Portland Cement Clinker	863

<b>S. Giménez-Molina, M.T. Blanco-Varela:</b> Solid State Phases Relationship in the CaO-SiO <sub>2</sub> -Al <sub>2</sub> O <sub>3</sub> -CaF <sub>2</sub> -CaSO <sub>4</sub> System	870
<b>N.B. Singh, K.N. Bhattacharjee, A.K. Shukla:</b> Effect of Alkali Bypass Dust on the Hydration of Granulated Blast Furnace Slag Blended Cement	883
<b>C. Arya, Y. Xu:</b> Effect of Cement Type on Chloride Binding and Corrosion of Steel in Concrete	893
<b>C.D. Lawrence:</b> Mortar Expansions Due to Delayed Ettringite Formation. Effects of Curing Period and Temperature	903

<b>NEWS ITEMS</b>	915
<b>OBITUARY — Professor Peter L. Pratt</b>	918

1995

Volume 25, Number 5

July

## COMMUNICATED PAPERS

<b>I. Odler, Y. Chen:</b> Investigations on the Aging of Hydrated Tricalcium Silicate and Portland Cement Pastes	919
<b>P.J. Tumidajski, I. Turc:</b> A Rapid Test for Sulfate Ingress into Concrete	924
<b>S. Chatterji:</b> Concrete Durability and CaO/SiO <sub>2</sub> Mole Ratio of CSH	929
<b>A. Amoura, J. Ambroise, J. Pera:</b> Modelisation du Comportement des Mortiers de Rembourrage a la Filtration	933
<b>Z-Q. Shi, D.D.L. Chung:</b> Concrete for Magnetic Shielding	939
<b>C. Ostrowski:</b> Study of the Crystal Structure of a-CaSO <sub>4</sub> ·0.5H <sub>2</sub> O	945
<b>S. Tsivilis, G. Kakali, K. Haldeou, G. Parissakis:</b> A Mathematical Model for the Control of Cement Setting Using Calcium Chloride as Accelerator	948
<b>V. Kasselouri, G. Dimopoulos, G. Parissakis:</b> Decomposition of CaCO <sub>3</sub> in the Presence of Organic Acids	955

## REFEREED PAPERS

<b>M. Collepardi, S. Monosi, P. Piccioli:</b> The Influence of Pozzolan Materials on the Mechanical Stability of Aluminous Cement	961
<b>S.F. Ahmad, S.H. Lodi, J. Qureshi:</b> Shear Behavior of Ferrocement Thin Webbed Sections	969
<b>A.K. Suryavanshi, J.D. Scantlebury, S.B. Lyon:</b> Pore Size Distribution of OPC & SRPC Mortars in Presence of Chlorides	980
<b>C. Arya, P.R.W. Vassie:</b> Influence of Cathode-to-Anode Ratio and Separation Distance on Galvanic Corrosion Currents of Steel in Concrete Containing Chlorides	989
<b>J.M. Khatib, P.S. Mangat:</b> Absorption Characteristics of Concrete as a Function of Location Relative to Casting Position	999
<b>O. Büyükoztürk, H.C. Rhim:</b> Modeling of Electromagnetic Wave Scattering by Concrete Specimens	1011
<b>N.B. Singh, K.N. Bhattacharjee, A.K. Shukla:</b> Hydration of Portland Blended Cements	1023
<b>J. Davies:</b> Study of Shear Fracture in Mortar Specimens	1031
<b>J. Duchesne, E.J. Reardon:</b> Measurement and Prediction of Portlandite Solubility in Alkali Solutions	1043
<b>V. Calogovic:</b> Gas Permeability Measurement of Porous Materials (Concrete) by Time-Variable Pressure Difference Method	1054
<b>H.C. Gran:</b> Fluorescent Liquid Replacement Technique. A Means of Crack Detection and Water: Binder Ratio Determination in High Strength Concretes	1063
<b>B. Bissonnette, M. Pigeon:</b> Tensile Creep at Early Ages of Ordinary, Silica Fume and Fiber Reinforced Concretes	1075
<b>X. Zhang, X.Z. Ding, T.H. Lim, C.K. Ong, B.T.G. Tan, J. Yang:</b> Microwave Study of Hydration of Slag Cement Blends in Early Period	1086
<b>D.K. Dutta, D. Bordoloi, P.C. Borthakur:</b> Hydration of Portland Cement Clinker in the Presence of Carbonaceous Materials	1095
<b>M. Vargas Muñoz, F. González García, M. González Rodríguez, M.C. González Vilchez, S. Hudson:</b> Influence of the Mineralogical Composition, Specific Surface Area and Strains — Crystallite Size of Alite on the Compressive Mechanical Strength of Portland Mortars. II. Clinkers of High Tricalcium Aluminate Contents	1103

## DISCUSSIONS

P. Gu, P. Xie, J.J. Beaudoin	1111
R. Francois, G. Arliguie, D. Bardy	1115
G. Goswami, P.K. Panigrahy	1117
G. Frigione, R. Sersale	1121
A.M. Brandt	1123
J.M. Torrenti, C. Boulay, C. Puch	1123
F. de Larrard, J. Marchand	1124
B.J. Addis, M.G. Alexander	1127
J. Bensted	1129
M.T. Blanco, S. García, S. Giménez, A. Palomo, F. Peurtas, T. Vázquez	1131
L. Tang, L.-O. Nilsson	1133
C. Andrade, C. Cervigón, A. Recuero, O. Río	1138

## NEWS ITEMS

1145

1995

Volume 25, Number 6

August

## COMMUNICATED PAPERS

V.A. Rossetti, F. Medici: Inertization of Toxic Metals in Cement Matrices: Effects on Hydration, Setting and Hardening	1147
R.K. Dhir, P.C. Hewlett, T.D. Dyer: Durability of "Self-Cure" Concrete	1153
P.J. Tumidajski, G.W. Chan, K.E. Philipose: An Effective Diffusivity for Sulfate Transport into Concrete	1159

## REFEREED PAPERS

M.H. Zhang: Microstructure, Crack Propagation, and Mechanical Properties of Cement Pastes Containing High Volumes of Fly Ash	1165
M.L. Allan: Probability of Corrosion Induced Cracking in Reinforced Concrete	1179
M. Hasegawa, T. Kobayashi, G.K.D. Pushpalal: A New Class of High Strength, Water and Heat Resistant Polymer-Cement Composite Solidified by an Essentially Anhydrous Phenol Resin Precursor	1191
A.S. El-Dieb, R.D. Hooton: Water-Permeability Measurement of High Performance Concrete Using a High-Pressure Triaxial Cell	1199
E. Nägele: New and Powerful Method for the Evaluation of Multiparameter Corrosion Tests	1209
T. Nishikawa, M. Takatsu, M. Daimon: Fracture Behavior of Hardened Cement Paste Incorporating Mineral Additions	1218
G.J.Z. Xu, D.F. Watt, P.P. Hudec: Effectiveness of Mineral Admixtures in Reducing ASR Expansion	1225
X. Cong, R.J. Kirkpatrick: Effects of the Temperature and Relative Humidity on the Structure of C-S-H Gel	1237
F.D. Lydon, M. Iacovou: Some Factors Affecting the Dynamic Modulus of Elasticity of High Strength Concrete	1246
M.M. Ali, S.K. Agarwal, S. Agarwal, S.K. Handoo: Sintering Kinetics of BaAl <sub>2</sub> O <sub>4</sub>	1257
J.S. Chinchón, C. Ayora, A. Aguado, F. Guirado: Influence of Weathering of Iron Sulfides Contained in Aggregates on Concrete Durability	1264
K.G. Babu, P.V.S. Prakash: Efficiency of Silica Fume in Concrete	1273
P.E. Streicher, M.G. Alexander: A Chloride Conduction Test for Concrete	1284
Y. Fu, J. Ding, J.J. Beaudoin: Expansion Characteristics of a Compounded-Expansive Additive and Pre-Hydrated High Alumina Cement Based Expansive Additive	1295
T. Sugama, N.R. Carciello, T.J. Nayberg, L.E. Brothers: Mullite Microsphere-Filled Lightweight Calcium Phosphate Cement Slurries for Geothermal Wells: Setting and Properties	1305
J. Ding, Y. Fu, J.J. Beaudoin: Strätlingite: Formation in High Alumina Cement-Silica Fume Systems: Significance of Sodium Ions	1311
D. Ravina: Tensile Strength of Green Concrete with Fly Ash and Chemical Admixtures	1320
C. Shi, R.L. Day: A Calorimetric Study of Early Hydration of Alkali-Slag Cements	1333



<b>S. Auer, H.-J. Kuzel, H. Pöhlmann, F. Sorrentino:</b> Investigation on MSW Fly Ash Treatment by Reactive Calcium Aluminates and Phases Formed	1347
<b>F. Aköz, F. Türker, S. Koral, N. Yüzer:</b> Effects of Sodium Sulfate Concentration on the Sulfate Resistance of Mortars With and Without Silica Fume	1360
<b>M. Enders:</b> Microanalytical Characterization (AEM) of Glassy Spheres and Anyhydrite from a High-Calcium Lignite Fly Ash from Germany	1369
<b>NEWS ITEMS</b>	1379

1995

Volume 25, Number 7

October

## COMMUNICATED PAPERS

<b>A. Demirbas, S. Karslioglu:</b> The Effect of Boric Acid Sludges Containing Borogypsym on Properties of Cement	1381
<b>I.B. Topçu, N.F. Günçan:</b> Using Waste Concrete as Aggregate	1385
<b>X. Fu, D.D.L. Chung:</b> Contact Electrical Resistivity Between Cement and Carbon Fiber: Its Decrease with Increasing Bond Strength and Its Increase During Fiber Pull-Out	1391
<b>X. Fu, D.D.L. Chung:</b> Linear Correlation of Bond Strength and Contact Electrical Resistivity Between Steel Rebar and Concrete	1397
<b>R.S. Iyer, B.R. Stanmore:</b> Surface Areas of Fly Ashes	1403

## REFEREED PAPERS

<b>K.A. MacDonald, D.O. Northwood:</b> Experimental Measurements of Chloride Ion Diffusion Rates Using a Two-Compartment Diffusion Cell: Effects of Material and Test Variables	1407
<b>S. Long, Y. Wu, C. Liu:</b> Investigation on the Formation of Ettringite in the Presence of BaO	1417
<b>D. Bonen, S.L. Sarkar:</b> The Superplasticizer Adsorption Capacity of Cement Pastes, Pore Solution Composition, and Parameters Affecting Flow Loss	1423
<b>R.A. Hanna, P.J. Barrie, C.R. Cheeseman, C.D. Hills, P.M. Buchler, R. Perry:</b> Solid State $^{29}\text{Si}$ and $^{27}\text{Al}$ NMR and FTIR Study of Cement Pastes Containing Industrial Wastes and Organics	1435
<b>P.J. Wainwright, H. Ait-Aider:</b> The Influence of Cement Source and Slag Additions on the Bleeding of Concrete	1445
<b>C. Hua, P. Acker, A. Ehrlacher:</b> Analyses and Models of the Autogenous Shrinkage of Hardening Cement Paste	1457
<b>J. Payá, J. Monzó, M.V. Borrachero, E. Peris-Mora:</b> Mechanical Treatment of Fly Ashes. Part I: Physico-Chemical Characterization of Ground Fly Ashes	1469
<b>Lj. Fisang, M. Djuric, R.M. Neducin, J. Ranogajec, A. Mihajlov:</b> An Optimization of Fly Ash Quantity in Cement Blending	1490
<b>M. Cheyrezy, V. Maret, L. Frouin:</b> Microstructural Analysis of RPC (Reactive Powder Concrete)	1491
<b>P. Richard, M. Cheyrezy:</b> Composition of Reactive Powder Concretes	1501
<b>M. Shirkavand, R. Baggott:</b> Effects of Superplasticizer on Workability and Flexural Strength of Autoclaved Calcium Silicates	1512
<b>M.R. Nilforoushan, J.H. Sharp:</b> The Effect of Additions of Alkaline-Earth Metal Chlorides on the Setting Behavior of a Refractory Calcium Aluminate Cement	1523
<b>T. Zhang, O.E. Gjorv:</b> Effect of Ionic Interaction in Migration Testing of Chloride Diffusivity in Concrete	1535
<b>S.E. Hussain, Rasheeduzzafar, A. Al-Musallam, A.S. Al-Gahtani:</b> Factors Affecting Threshold Chloride for Reinforcement Corrosion in Concrete	1543
<b>P.J. Tumidajski, G.W. Chan, R.F. Feldman, G. Strathdee:</b> A Boltzmann-Matano Analysis of Chloride Diffusion	1556
<b>S. Wild, B.B. Sabir, J.M. Khatib:</b> Factors Influencing Strength Development of Concrete Containing Silica Fume	1567
<b>R.S. Gollop, H.F.W. Taylor:</b> Microstructural and Microanalytical Studies of Sulfate Attack. III. Sulfate-Resisting Portland Cement: Reactions with Sodium and Magnesium Sulfate Solutions	1581
<b>H.A. Toutanji, T. El-Korchi:</b> The Influence of Silica Fume on the Compressive Strength of Cement Paste and Mortar	1591

## NEWS ITEMS

1603

1995

Volume 25, Number 8

December

## EDITORIAL - Della M. Roy

iii

## COMMUNICATED PAPERS

- P.J.M. Monteiro, C.T. Chang:** The Elastic Moduli of Calcium Hydroxide 1605  
**A. Demirbas, S. Karslioglu, A. Ayas:** Utilization of Lignite Ash in Concrete Mixtures 1610  
**S.A. Abo El-Enein, M.F. Kotkata, G.B. Hanna, M. Saad, M.M. Abd El Razek:** 1615  
 Electrical Conductivity of Concrete Containing Silica Fume  
**F. Wagner, G. Schober, H. Mortel:** Measurement of the Gas Permeability of 1621  
 Autoclaved Aerated Concrete in Conjunction with its Physical Properties  
**R.K. Dhir, F.H. Hubbard, H.P. Unsworth:** XRF Thin Film Copper Disc Evaporation Test for the 1627  
 Elemental Analysis of Concrete Test Solutions  
**E. Tazawa, S. Miyazawa:** Experimental Study on Mechanism of Autogenous Shrinkage of Concrete 1633

## REFEREED PAPERS

- C. Venkobachar, L. Iyengar, U.K. Mishra, M.S. Chauhan:** Release of U(VI) from Spent Biosorbent 1639  
 Immobilized in Cement Concrete Blocks  
**Q. Bian, S. Nishibayashi, X. Wu, A. Yoshino, H. Zhu, T. Wang, M. Tang:** Preliminary Study of 1647  
 Effect of  $\text{LiNO}_2$  on Expansion of Mortars Subjected to Alkali-Silica Reaction  
**B. Redjel:** Etude Experimentale de la Fatigue du Beton en Flexion 3 Points 1655  
**H. Hornain, J. Marchand, V. Duhot, M. Moranville-Regourd:** Diffusion of 1667  
 Chloride Ions in Limestone Filler Blended Cement Pastes and Mortars  
**P.J. Tumidajski, M.L. Thomson:** Influence of CdO on the Early Hydration of  $3\text{CaO} \cdot \text{Al}_2\text{O}_3$  1679  
**C. He, B. Osbeck, E. Makovicky:** Pozzolanic Reactions of Six Principal Clay Minerals: 1691  
 Activation, Reactivity Assessments and Technological Effects  
**A.V. Sætta, B.A. Schrefler, R.V. Vitaliani:** 2-D Model for Carbonation and 1703  
 Moisture/Heat Flow in Porous Materials  
**M.H. Zhang, V.M. Malhotra:** Characteristics of a Thermally Activated 1713  
 Alumino-Silicate Pozzolanic Material and Its Use in Concrete  
**V. Kasselouri, P. Tsakiridis, Ch. Malami, B. Georgali, C. Alexandridou:** 1726  
 A Study on the Hydration Products of a Non-Expansive Sulfoaluminate Cement  
**F.D. Lydon:** Effect of Coarse Aggregate and Water/Cement Ratio on Intrinsic Permeability of 1737  
 Concrete Subject to Drying  
**A. Kronlof, M. Leivo, P. Sipari:** Experimental Study on the Basic Phenomena of Shrinkage and 1747  
 Cracking of Fresh Mortar  
**M.P. Luxan, F. Dorrego, A. Laborde:** Ancient Gypsum Mortars from St. Engracia (Zaragoza, Spain): 1755  
 Characterization, Identification of Additives and Treatments  
**H. Justnes, E.C. Nygaard:** Technical Calcium Nitrate as Set Accelerator for Cement at 1766  
 Low Temperatures  
**S. Jacobsen, H.C. Gran, E.J. Sellevold, J.A. Bakke:** 1775  
 High Strength Concrete — Freeze/Thaw Testing and Cracking  
**S. Jacobsen, J. Marchand, H. Hornain:** SEM Observations of the Microstructure of 1781  
 Frost Deteriorated and Self-Healed Concretes  
**S.L. Mak, K. Torii:** Strength Development of High Strength Concretes with and without 1791  
 Silica Fume under the Influence of High Hydration Temperatures

## DISCUSSIONS

- R. Sersale, G. Frigione, R. Cioffi, B. de Vito, F. Zenone** 1803  
**Ch. Malami, V. Kaloidas, G. Batis, N. Kouloumbi** 1805  
**J. Bensted** 1806  
**M. Motzet, H. Pollmann, J. Neubauer** 1808  
**J.S. Lota, P.L. Pratt, J. Bensted** 1811

<b>R.S. Gollop, H.F.W. Taylor</b>	<b>1814</b>
<b>M.C. Ball</b>	<b>1815</b>
<b>NEWS ITEMS</b>	<b>1817</b>
<b>INDEX TO VOLUME 25</b>	<b>1819</b>
<b>KEYWORD INDEX</b>	<b>1827</b>
<b>AUTHOR INDEX</b>	<b>1830</b>

1996

Volume 26, Number 1

January

**EDITORIAL**

<b>D.M. Roy: Cement and Concrete Research: 1996 and Beyond</b>	<b>1</b>
--	----------

**COMMUNICATED PAPERS**

<b>S. Diamond: Digital Image Publication for Backscatter SEM Micrographs</b>	<b>3</b>
<b>N. Banthia, C. Yan, S. Mindess: Restrained Shrinkage Cracking in Fiber Reinforced Concrete: A Novel Test Technique</b>	<b>9</b>
<b>X. Fu, D.D.L. Chung: Self-Monitoring of Fatigue Damage in Carbon Fiber Reinforced Cement</b>	<b>15</b>
<b>P.M. Gifford, J.E. Gillot: Alkali-Silica Reaction (ASR) and Alkali-Carbonate Reaction (ACR) in Activated Blast Furnace Slag Cement (ABFSC) Concrete</b>	<b>21</b>
<b>G. Li, P. Le Bescop, M. Moranville: The U Phase Formation in Cement-Based Systems Containing High Amounts of Na<sub>2</sub>SO<sub>4</sub></b>	<b>27</b>
<b>K.L. Scrivener, K.M. Nemati: The Percolation of Pore Space in the Cement Paste/Aggregate Interfacial Zone of Concrete</b>	<b>35</b>
<b>Y. Fang, D.M. Roy, R. Roy: Microwave Clinkering of Ordinary and Colored Portland Cements</b>	<b>41</b>
<b>T.R. Naik, S.S. Singh, M.M. Hossain: Enhancement in Mechanical Properties of Concrete Due to Blended Ash</b>	<b>49</b>
<b>S. Jacobsen, E.J. Sellevold: Self Healing of High Strength Concrete After Deterioration by Freeze/Thaw</b>	<b>55</b>
<b>C. Tasdemir, M.A. Tasdemir, F.D. Lydon, B.I.G. Barr: Effects of Silica Fume and Aggregate Size on the Brittleness of Concrete</b>	<b>63</b>
<b>X. Fu, D.D.L. Chung: Vibration Damping Admixtures for Cement</b>	<b>69</b>
<b>J. Neubauer, R. Sieber, H.-J. Kuzel, M. Ecker: Investigations on Introducing Si and Mg into Brownmillerite-A Rietveld Refinement</b>	<b>77</b>

**REFEREED PAPERS**

<b>C.C. Yang, R. Huang: Double Inclusion Model for Approximate Elastic Moduli of Concrete Material</b>	<b>83</b>
<b>H. Zanni, M. Cheyrezy, V. Maret, S. Philippot, P. Nieto: Investigation of Hydration and Pozzolanic Reaction in Reactive Powder Concrete (RPC) Using 29Si NMR</b>	<b>93</b>
<b>H. Uchikawa, S. Hanehara, H. Hirao: Influence of Microstructure on the Physical Properties of Concrete Prepared by Substituting Mineral Powder For Part of Fine Aggregate</b>	<b>101</b>
<b>E.F. Irassar, A. Di Maio, O.R. Batic: Sulfate Attack on Concrete with Mineral Admixtures</b>	<b>113</b>
<b>Z. Jia, A. Castro-Montero, S.P. Shah: Observation of Mixed Mode Fracture with Center Notched Disk Specimens</b>	<b>125</b>
<b>J.S. Lumley, R.S. Gollop, G.K. Moir, H.F.W. Taylor: Degrees of Reaction of the Slag in Some Blends with Portland Cements</b>	<b>139</b>
<b>A. Shayan, R. Diggins, I. Ivanusec: Effectiveness of Fly Ash in Preventing Deleterious Expansion Due to Alkali-Aggregate Reaction in Normal and Steam-Cured Concrete</b>	<b>153</b>
<b>N.M. Ihekweba, B.B. Hope, C.M. Hansson: Structural Shape Effect on Rehabilitation of Vertical Concrete Structures by ECE Technique</b>	<b>165</b>

<b>NEWS ITEMS</b>	<b>177</b>
-------------------	------------

1996

Volume 26, Number 2

February

## COMMUNICATED PAPERS

- T.-P. Chang, M.-M. Shieh:** Fracture Properties of Lightweight Concrete 181
- X. Fu, D.D.L. Chung:** Effect of Polymer Admixtures to Cement on the Bond Strength and Electrical Contact Resistivity Between Steel Fiber and Cement 189
- G. Li, P. Le Bescop, M. Moranville:** Expansion Mechanism Associated with the Secondary Formation of the U Phase in Cement-Based Systems Containing High Amounts of Na<sub>2</sub>SO<sub>4</sub> 195

## REFEREED PAPERS

- M.I. Sánchez de Rojas, M. Frías:** The Pozzolanic Activity of Different Materials, its Influence on the Hydration Heat in Mortars 203
- A. Bautista, J.A. González:** Analysis of the Protective Efficiency of Galvanizing Against Corrosion of Reinforcements Embedded in Chloride Contaminated Concrete 215
- J. Payá, J. Monzó, M.V. Borrachero, E. Peris-Mora, E. González-López:** Mechanical Treatment of Fly Ashes Part II: Particle Morphologies in Ground Fly Ashes (GFA) and Workability of GFA-Cement Mortars 225
- L. Lapcik, Jr., Z. Šimek:** Electron Paramagnetic Resonance Study of Dry Cements 237
- M. Enders:** The CaO Distribution to Mineral Phases in a High Calcium Fly Ash from Eastern Germany 243
- L. Dhouibi-Hachani, E. Triki, J. Grandet, A. Raharinaivo:** Comparing the Steel-Concrete Interface State and its Electrochemical Impedance 253
- N.M. Ihekweba, B.B. Hope, C.M. Hansson:** Pull-Out and Bond Degradation of Steel Rebars in ECE Concrete 267
- C. Hu, F. de Larrard:** The Rheology of Fresh High-Performance Concrete 283
- K.O. Kjellsen:** Heat Curing and Post-Heat Curing Regimes of High-Performance Concrete: Influence on Microstructure and C-S-H Composition 295
- N. Thaulow, U.H. Jakobsen, B. Clark:** Composition of Alkali Silica Gel and Ettringite in Concrete Railroad Ties: SEM-EDX and X-Ray Diffraction Analyses 309
- C.P. Atkins, J.D. Scantlebury, P.J. Nedwell, S.P. Blatch:** Monitoring Chloride Concentrations in Hardened Cement Pastes Using Ion Selective Electrodes 319

## DISCUSSIONS

- S.K. Bandopadhyay, S.N. Ghosh** 325
- M. Vargas Munoz, F.G. Garcia, M.G. Rodrigues, M.C.G. Vilchez** 327
- J. Bensted** 329
- M. Frías, M.I. Sánchez de Rojas** 331
- S. Chatterji** 335
- B. Mather** 337

## NEWS ITEMS

341

1996

Volume 26, Number 3

March

## COMMUNICATED PAPERS

- C. Arya, F.K. Ofori-Darko:** Influence of Crack Frequency on Reinforcement Corrosion in Concrete 345
- K. Tan, O.E. Gjorv:** Performance of Concrete Under Different Curing Conditions 355

## REFEREED PAPERS

- N. Wang, S. Mindess, K. Ko:** Fibre Reinforced Concrete Beams Under Impact Loading 363
- M. Murat, F. Sorrentino:** Effect of Large Additions of Cd, Pb, Cr, Zn, to Cement Raw Meal on the Composition and the Properties of the Clinker and the Cement 377

<b>P. Frantzis, R. Baggott:</b> Effect of Vibration on the Rheological Characteristics of Magnesia Phosphate and Ordinary Portland Cement Slurries	387
<b>S.B. Hegde, K.M. Thirupathayya, N. Laxmi Narasimhan, N. Laxmi:</b> Investigations on the Use of Garnet Granulites in the Preparation of High Strength Portland Cement	397
<b>C. Alonso, C. Andrade, C. Argiz, B. Malric:</b> $\text{Na}_2\text{PO}_3\text{F}$ as Inhibitor of Corroding Reinforcement in Carbonated Concrete	405
<b>Y. Fu, J. Ding, J.J. Beaudoin:</b> Effect of Different Calcium Aluminate Hydrates on Ettringite Formation and Expansion of High Alumina Cement-Based Expansive Cement Pastes	417
<b>J. Marchand, H. Hornain, S. Diamond, M. Pigeon, H. Guiraud:</b> The Microstructure of Dry Concrete Products	427
<b>C. Shi, R.L. Day:</b> Some Factors Affecting Early Hydration of Alkali-Slag Cements	439
<b>M. Singh, M. Garg:</b> Relationship Between Mechanical Properties and Porosity of Water-Resistant Gypsum Binder	449
<b>M.T. Blanco-Varela, F. Puertas, T. Vázquez, A. Palomo:</b> Modelling of the Burnability of White Cement Raw Mixes Made with $\text{CaF}_2$ and $\text{CaSO}_4$	457
<b>K.G. Babu, G.S.N. Rao:</b> Efficiency of Fly Ash in Concrete with Age	465
<b>V. Pavlik:</b> Corrosion of Hardened Cement Paste by Acetic and Nitric Acids Part III: Influence of Water/Cement Ratio	475
<b>S.P. Jiang, J.C. Mutin, A. Nonat:</b> Studies on Mechanism and Physico-Chemical Parameters at the Origin of the Cement Setting II. Physico-Chemical Parameters Determining the Coagulation Process	491
<b>J.A. González, E. Ramírez, A. Bautista, S. Feliu:</b> The Behaviour of Pre-Rusted Steel in Concrete	501

1996

Volume 26, Number 4

April

## COMMUNICATED PAPERS

<b>M. Thomas:</b> Chloride Thresholds in Marine Concrete	513
<b>I.B. Topçu:</b> Fracture Toughness of a Solidified Composite Residual Material	521
<b>P.J. Tumidajski:</b> Electrical Conductivity of Portland Cement Mortars	529
<b>X. Fu, D.D.L. Chung:</b> Effect of Methylcellulose Admixture on the Mechanical Properties of Cement	535
<b>P.J. Tumidajski, A.S. Schumacher, S. Perron, P. Gu, J.J. Beaudoin:</b> On the Relationship Between Porosity and Electrical Resistivity in Cementitious Systems	539
<b>L.T. Mammoliti, L.C. Brown, C.M. Hansson, B.B. Hope:</b> The Influence of Surface Finish of Reinforcing Steel and pH of the Test Solution on the Chloride Threshold Concentration for Corrosion Initiation in Synthetic Pore Solutions	545
<b>P.J. Tumidajski, G.W. Chan:</b> Effect of Sulfate and Carbon Dioxide on Chloride Diffusivity	551

## REFEREED PAPERS

<b>P.J. Tumidajski, G.W. Chan:</b> Durability of High Performance Concrete in Magnesium Brine	557
<b>S. Miyazawa, P.J.M. Monteiro:</b> Volume Change of High-Strength CONCRETE in Moist Conditions	567
<b>H. Hornain, J. Marchand, A. Ammouche, J.P. Commène, M. Moranville:</b> Microscopic Observation of Cracks in Concrete-A New Sample Preparation Technique Using Dye Impregnation	573
<b>S.K. Rejeb:</b> Improving Compressive Strength of Concrete by a Two-Step Mixing Method	585
<b>K.O. Kjellsen, H.M. Jennings, B. Lagerblad:</b> Evidence of Hollow Shells in the Microstructure of Cement Paste	593
<b>M. Pigeon, R. Pleau, M. Azzabi, N. Banthia:</b> Durability of Microfiber-Reinforced Mortars	601
<b>G. Ramesh, E.D. Sotelino, W.F. Chen:</b> Effect of Transition Zone on Elastic Moduli of Concrete Materials	611
<b>J. Lombardi, A. Perruchot, P. Massard, C. Larive:</b> Étude Comparée de Gels Silico-Calciques Produits des Réactions Alcalis-Granulats Dans les Bétons et de Gels Synthétiques Types	623

## DISCUSSIONS

<b>J. Bensted</b>	633
<b>O. Peterson</b>	637
<b>J. Bensted, J. Munn</b>	641



J. Bensted	645
Den Min, Hong Dongwen, Lan Xianghui, Tang Mingshu	647
J. Bensted	649

NEW ITEMS	651
-----------	-----

1996	Volume 26, Number 5	May
------	---------------------	-----

## COMMUNICATED PAPERS

N. Banthia, C. Yan: Bond-Slip Characteristics of Steel Fibers in High Reactivity Metakaolin (HRM) Modified Cement-Based Matrices	657
M. Deng, Z. Xu, X. Lan, S. Han, M. Tang: Microstructures of Some Alkali-Silica Reactive Aggregates in China	663
M. Saad, S.A. Abo-El-Enain, G.B. Hanna, M.F. Kotkata: Effect of Temperature on Physical and Mechanical Properties of Concrete Containing Silica Fume	669
M. Leivo: Radio Wave Heater for Concrete	677
G. Baronio, M. Berra, L. Bertolini, T. Pastore: Steel Corrosion Monitoring In Normal and Total-Lightweight Concretes Exposed to Chloride and Sulphate Solutions Part I: Potential Measurements	683
G. Baronio, M. Berra, L. Bertolini, T. Pastore: Steel Corrosion Monitoring In Normal and Total-Lightweight Concretes Exposed to Chloride and Sulphate Solutions Part II: Polarisation Resistance Measurements	691
P.J. Tumidajski: Application of Danckwerts' Solution to Simultaneous Diffusion and Chemical Reaction in Concrete	697

## REFEREED PAPERS

Z. Heren, H. Ölmez: The Influence of Ethanolamines on the Hydration and Mechanical Properties of Portland Cement	701
A. Saasen, P.A. Log: The Effect of Ilmenite Plant Dusts on Rheological Properties of Class G Oil Well Cement Studies	707
A.K. Suryavanshi, J.D. Scantlebury, S.B. Lyon: Mechanism of Friedel's Salt Formation in Cements Rich in Tri-Calcium Aluminate	717
A.K. Suryavanshi, R.N. Swamy: Stability of Friedel's Salt in Carbonated Concrete Structural Elements	729
K. Ikeda, K. Kishimoto, H. Shima: Structure Refinement of Calcium Sulfoaluminate $C_4A_3\bar{S}$ With Emphasis of Oxygen Deficiency	743
A. Delagrave, M. Pigeon, J. Marchand, É. Revertégat: Influence of Chloride Ions and pH Level on the Durability of High Performance Cement Pastes (Part II)	749
G. Balabanić, N. Bićanić, A. Dureković: The Influence of W/C Ratio, Concrete Cover Thickness and Degree of Water Saturation on the Corrosion Rate of Reinforcing Steel in Concrete	761
N.M. Ihekweaba, B.B. Hope: Mechanical Properties of Anodic and Cathodic Regions of ECE Treated Concrete	771
T. Sugiyama, T.W. Bremner, Y. Tsuji: Determination of Chloride Diffusion Coefficient and Gas Permeability of Concrete and Their Relationship	781
G. Daude, J.M. Lasnier, B. Guillaubert, C. Filliatre, A. Sabouraud, R. Guilhemat: Extraction and Identification of Organic Fibres from Fibre-Reinforced Cement Composites Without Asbestos	791
J. Ding, Y. Fu, J.J. Beaudoin: Study of Hydration Mechanisms in the High Alumina Cement-Sodium Silicate System	799
Y. Lu, M. Su, Y. Wang: Microstructural Study of the Interfacial Zone Between Expansive Sulphoaluminate Cement Pastes and Limestone Aggregates	805

## DISCUSSIONS

S. Chatterji	813
P.J. Tumidajski, G.W. Chan, R.F. Feldman, G. Strathdee	817

NEWS ITEMS	821
------------	-----

## REFEREED PAPERS

- M.J. de la Torre López, P.E. Sebastián, G.J. Rodríguez:** A Study of the Wall Material in the Alhambra (Granada, Spain) 825
- M.P. Luxán, F. Dorrego:** Ancient XVI Century Mortar from the Dominican Republic: Its Characteristics, Microstructure and Additives 841
- C. Arya, Q. Sa'id-Shawqi, P.R.W. Vassie:** Factors Influencing Electrochemical Removal of Chloride from Concrete 851
- A. Colantuono, S. Dal Vecchio, O. Marino, G. Mascolo, A. Vitale:** Cement-Lime Mortars Joining Porous Stones of Masonries Able to Stop the Capillary Rise of Water 861
- S. Jacobsen, J. Marchand, L. Boisvert:** Effect of Cracking and Healing on Chloride Transport in OPC Concrete 869
- M. Nehdi, S. Mindess, P.-C. Aïtcin:** Optimization of High Strength Limestone Filler Cement Mortars 883
- S.Y. Wang, C. Vipulananda:** Leachability of Lead from Solidified Cement-Fly Ash Binders 895
- T. Zhang, O.E. Gjorv:** Diffusion Behavior of Chloride Ions in Concrete 907
- S. Jacobsen, E.J. Sellevold, S. Matala:** Frost Durability of High Strength Concrete: Effect of Internal Cracking on Ice Formation 919
- T.S. Nagaraj, Z. Banu:** Generalization of Abrams' Law 933
- Zang Chengzhi, Wang Aiqin, Tang Mingshu, Liu Xiaoyu:** The Filling Role of Pozzolanic Material 943
- V. Slowik, V.E. Saouma, A. Thompson:** Large Scale Direct Tension Test of Concrete 949
- X. Feng, X. Cheng:** The Structure and Quantum Chemistry Studies of  $3\text{CaO}\cdot 3\text{Al}_2\text{O}_3\cdot \text{SrSO}_4$  955
- M.H. Zhang, R. Lastra, V.M. Malhotra:** Rice-Husk Ash Paste and Concrete: Some Aspects of Hydration and the Microstructure of the Interfacial Zone Between the Aggregate and Paste 963

- LETTER TO THE EDITOR** 979
- NEWS ITEMS** 981

## COMMUNICATED PAPERS

- X. Fu, D.D.L. Chung:** Degree of Dispersion of Latex Particles In Cement Paste, as Assessed by Electrical Resistivity Measurement 985
- I. Casanova, L. Agulló, A. Aguado:** Aggregate Expansivity Due to Sulfide Oxidation-I. Reaction System and Rate Model 993
- Jin Qinhua, Deng Min, Han Sufen:** Investigation of Deteriorated Concrete Railway Ties 999
- X. Fu, W. Lu, D.D.L. Chung:** Improving the Bond Strength Between Carbon Fiber and Cement by Fiber Surface Treatment and Polymer Addition to Cement Mix 1007

## REFEREED PAPERS

- R.S. Gollop, H.F.W. Taylor:** Microstructural and Microanalytical Studies of Sulfate Attack, IV. Reactions of a Slag Cement Paste with Sodium and Magnesium Sulfate Solutions 1013
- R.S. Gollop, H.F.W. Taylor:** Microstructural and Microanalytical Studies of Sulfate Attack. V. Comparison of Different Slag Blends 1029
- F.O. Okafor, O.J. Eze-Uzomaka, N. Egbuniwe:** The Structural Properties and Optimum Mix Proportions of Palmnut Fibre-Reinforced Mortar Composite 1045
- D.M. Mahapatra, G. Goswami, J.D. Panda:** A Study of the Occurrence of Magnesium Oxide in Different Phases of Limestone 1057
- V. Stoitchkov, P. Abadjiev, V. Lilkov, V. Vasileva:** Effect of the "Pozzolit" Active Mineral Admixture on the Properties of Cement Mortars and Concretes Part I: Physical and Mechanical Properties 1065

<b>V. Lilkov, V. Stoitchkov:</b> Effect of the "Pozzolit" Active Mineral Admixture on the Properties of Cement Mortars and Concretes Part 2: Pozzolanic Activity	1073
<b>C.S. Gutti, A. Roy, J.B. Metcalf, R.K. Seals:</b> The Influence of Admixtures on the Strength and Linear Expansion of Cement-Stabilized Phosphogypsum	1083
<b>N.M. Ihekweba, B.B. Hope, C.M. Hansson:</b> Carbonation and Electrochemical Chloride Extraction from Concrete	1095
<b>L. Wu, X. Peng, J. Yang, G. Bai:</b> Influence of Some Technology Parameters on the Structures of Autoclaved Lime-Sand Concrete	1109
<b>T. Celik, K. Marar:</b> Effects of Crushed Stone Dust on Some Properties of Concrete	1121
<b>R. Hill, K. Daugherty:</b> The Interaction of Calcium Nitrate and a Class C Fly Ash During Hydration	1131
<b>NEWS ITEMS</b>	1145

1996

Volume 26, Number 8

August

## COMMUNICATED PAPERS

<b>Ping Gu, S. Elliott, J.J. Beaudoin, B. Arsenault:</b> Corrosion Resistance of Stainless Steel in Chloride Contaminated Concrete	1151
<b>M.A. Climent-Llorca, E. Viqueira-Pérez, Ma. López-Atalaya:</b> Embeddable Ag/AgCl Sensors for In-Situ Monitoring Chloride Contents in Concrete	1157
<b>M. Pigeon, M. Azzabi, R. Pleau:</b> Can Microfibers Prevent Frost Damage?	1163

## REFEREED PAPERS

<b>J.O. Odigure:</b> Mineral Composition and Microstructure of Clinker from Raw Mix Containing Metallic Particles	1171
<b>H. El-Didamony, A.M. Sharara, I.M. Helmy, S. Abd El-Aleem:</b> Hydration Characteristics of $\beta$ -C <sub>2</sub> S in the Presence of Some Accelerators	1179
<b>M.K. Gopalan:</b> Sorptivity of Fly Ash Concretes	1189
<b>M.D. de Castellar, J.C. Lorente, A. Traveria, J.M. Tura:</b> Cracks in Sorel's Cement Polishing Bricks as a Result of Magnesium Oxychloride Carbonation	1199
<b>Deng Dehua, Zhang Chuanmei:</b> The Effect of Aluminate Materials on the Phases in Magnesium Oxychloride Cement	1203
<b>A.K. Chatterjee:</b> High Belite Cements-Present Status and Future Technological Options: Part I	1213
<b>A.K. Chatterjee:</b> Future Technological Options: Part II	1227
<b>P.F. McGrath, R.D. Hooton:</b> Influence of Voltage on Chloride Diffusion Coefficients from Chloride Migration Tests	1239
<b>M.A. Issa, A.B. Shafiq, A.M. Hammad:</b> Crack Arrest in Mortar Matrix Reinforced with Unidirectionally Aligned Fibers	1245
<b>C. Carde, R. François, Jean-Michel Torrenti:</b> Leaching of Both Calcium Hydroxide and C-S-H from Cement Paste: Modeling the Mechanical Behavior	1257
<b>C.A. Strydom, Q.I. Roode, J.H. Potgieter:</b> Thermogravimetric and X-Ray Powder Diffraction Analysis of Precipitator Dust from a Rotating Lime Kiln	1269
<b>R. Talero:</b> Comparative XRD Analysis Ettringite Originating from Pozzolan and from Portland Cement	1277

## DISCUSSIONS

<b>E.F. Irassar</b>	1285
<b>F. Aköz, F. Türker, S. Koral, N. Yüzer</b>	1287

## BOOK REVIEWS

1289

## NEWS ITEMS

1291

## COMMUNICATED PAPERS

- M. Djuric, J. Ranogajec, R. Omorjan, S. Miletic:** Sulfate Corrosion of Portland Cement-Pure and Blended With 30% of Fly Ash 1295
- P.J. Tumidajski, A.S. Schumacher:** On the Relationship Between the Formation Factor and Propan-2-ol Diffusivity in Mortars 1301

## REFEREED PAPERS

- I. Odler, H. Zhang:** Investigations on High  $\text{SO}_3$  Portland Clinkers and Cements I. Clinker Synthesis and Cement Preparation 1307
- H. Zhang, I. Odler:** Investigations on High  $\text{SO}_3$  Portland Clinkers and Cements II. Properties of Cements 1315
- B.J. Christensen, T.O. Mason, H.M. Jennings:** Comparison of Measured and Calculated Permeabilities for Hardened Cement Pastes 1325
- R. Jaubertie, M. Temimi, M. Laquerbe:** Hydrothermal Transformation of Tobermorite Gel to 10 Å Tobermorite 1335
- A. Arafah, R. Al-Zaid, M. Al-Haddad:** Influence of Non-Standard Curing on the Strength of Concrete in Arid Areas 1341
- C. Shi:** Early Microstructure Development of Activated Lime-Fly Ash Pastes 1351
- F. Puertas, M.T. Blanco-Varela, T. Vázquez, A. Palomo:** Influence of Sand Nature on Burnability of White Cement Raw Mixes Made Using  $\text{CaF}_2$  and  $\text{CaSO}_4$  Fluxing/Mineralizer Pair 1361
- O.E. Omotoso, D.G. Ivey, R. Mikula:** Quantitative X-Ray Diffraction Analysis of Chromium(III) Doped Tricalcium Silicate Pastes 1369
- C. Atzeni, L. Massidda, U. Sanna:** Use of Granulated Slag from Lead and Zinc Processing in Concrete Technology 1381
- J. Monzó, J. Payá, M.V. Borrachero, A. Córcoles:** Use of Sewage Sludge Ash(SSA)-Cement Admixtures in Mortars 1389
- D.S. Klimesch, A. Ray, B. Sloane:** Autoclaved Cement-Quartz Pastes: The Effects on Properties When Using Ground Quartz with Different Surface Areas Part I: Quartz of Wide Particle Size Distribution 1399
- K.-Ch. Thienel, F.S. Rostásy:** Transient Creep of Concrete Under Biaxial Stresses and High Temperature 1409
- T. Merikallio, R. Mannonen, V. Penttala:** Drying of Lightweight Concrete Produced from Crushed Expanded Clay Aggregates 1423
- J.O. Odigure:** Kinetic Modelling of Cement Raw Mix Containing Iron Particles and Clinker Microstructure 1435
- G.K. Glass, Y. Wang, N.R. Buenfeld:** An Investigation of Experimental Methods Used to Determine Free and Total Chloride Contents 1443
- R. Yang:** Crystallinity Determination of Pure Phases Used as Standards for QXDA in Cement Chemistry 1451
- NEWS ITEMS** 1463

## COMMUNICATED PAPERS

- Xuli Fu, D.D.L. Chung:** Submicron Carbon Filament Cement-Matrix Composites for Electromagnetic Interference Shielding 1467
- G. Kakali, G. Parissakis, D. Bouras:** A Study on the Burnability and the Phase Formation of PC Clinker Containing Cu Oxide 1473
- M. Saad, S.A. Abo-El-Enain, G.B. Hanna, M.F. Kotkata:** Effect of Silica Fume on the Phase Composition and Microstructure of Thermally Treated Concrete 1479
- Xuli Fu, Weiming Lu, D.D.L. Chung:** Improving the Tensile Properties of Carbon Fiber Reinforced Cement by Ozone Treatment of the Fiber 1485

- T.R. Naik, S.S. Singh, C.O. Huber, B.S. Brodersen:** Use of Post-Consumer Waste Plastics in Cement-Based Composites 1489
- Y. Fu, J.J. Beaudoin:** Microcracking as a Precursor to Delayed Ettringite Formation in Cement Systems 1493
- X. Fu, D.D.L. Chung:** Improving the Bond Strength Between Steel Rebar and Concrete by Oxidation Treatments of the Rebar 1499

# REFEREED PAPERS

- H. Zhang, Z. Lin, D. Tong:** Influence of the Type of Calcium Sulfate on the Strength and Hydration of Portland Cement Under an Initial Steam-Curing Condition 1505
- J.-K. Kim, Y.-Y. Kim:** Experimental Study of the Fatigue Behavior of High Strength Concrete 1513
- E. Ramírez, J.A. González, A. Bautista:** The Protective Efficiency of Galvanizing Against Corrosion of Steel in Mortar and in  $\text{Ca}(\text{OH})_2$  Saturated Solutions Containing Chlorides 1525
- S. Wild, J.M. Khatib, A. Jones:** Relative Strength, Pozzolanic Activity and Cement Hydration in Superplasticised Metakaolin Concrete 1537
- J.M. Khatib, S. Wild:** Pore Size Distribution of Metakaolin Paste 1545
- M. Pigeon, C. Talbot, J. Marchand, H. Hornain:** Surface Microstructure and Scaling Resistance of Concrete 1555
- C.C. Yang, R. Huang:** A Two-Phase Model for Predicting the Compressive Strength of Concrete 1567
- C.A. Milanesi, S.A. Marfil, O.R. Batic, P.J. Maiza:** The Alkali-Carbonate Reaction and its Reaction Products: An Experience with Argentinean Dolomite Rocks 1579
- H. Yalcyn, M. Ergun:** The Prediction of Corrosion Rates of Reinforcing Steels in Concrete 1593

# DISCUSSIONS

- D. McDonald** 1601
- M. Thomas** 1603

- LETTER TO THE EDITOR** 1605
- NEWS ITEMS** 1607

1996

Volume 26, Number 11

November

# COMMUNICATED PAPER

- J.H. Potgieter, C.A. Strydom:** An Investigation into the Correlation Between Different Surface Area Determination Techniques Applied to Various Limestone-Related Compounds 1613

# REFEREED PAPERS

- O.N. Oktar, H. Moral, M.A. Taşdemir:** Sensitivity of Concrete Properties to the Pore Structure of Hardened Cement Paste 1619
- O.N. Oktar, H. Moral, M.A. Taşdemir:** Factors Determining the Correlations Between Concrete Properties 1629
- R. Cantin, M. Pigeon:** Deicer Salt Scaling Resistance of Steel-Fiber-Reinforced Concrete 1639
- R. Yang, C.D. Lawrence, J.H. Sharp:** Delayed Ettringite Formation in 4-Year Old Cement Pastes 1649
- T. Sugama:** Hot Alkali Carbonation of Sodium Metaphosphate Modified Fly Ash/Calcium Aluminate Blend Hydrothermal Cements 1661
- J. Beretka, M. Marroccoli, M. Sherman, G.L. Valenti:** The Influence of  $\text{C}_4\text{A}_3\text{S}$  Content and W/S Ratio on the Performance of Calcium Sulfoaluminate-Based Cements 1673
- C. Freidin:** Stableness of New Concrete on the Quartz Bond in Water and Sulphate Environments 1683
- A. Emanuelson, E. Henderson, S. Hansen:** Hydration of Ferrite  $\text{Ca}_2\text{AlFeO}_5$  in the Presence of Sulphates and Bases 1689



<b>O.M. Jensen, A.M. Coats, F.P. Glasser:</b> Chloride Ingress Profiles Measured by Electron Probe Micro Analysis	<b>1695</b>
<b>P. Faucon, P. Le Bescop, F. Adenot, P. Bonville, J.F. Jacquinot, F. Pineau, B. Felix:</b> Leaching of Cement: Study of the Surface Layer	<b>1707</b>
<b>N. De Belie, H.J. Verselder, B. De Blaere, D. Van Nieuwenburg, R. Verschoore:</b> Influence of the Cement Type on the Resistance of Concrete to Feed Acids	<b>1717</b>
<b>I. Janotka, J. Madejová, L. Števula, D.M. Frt'álová:</b> Behaviour of $\text{Ca}(\text{OH})_2$ in the Presence of the Set Styrene-Acrylate Dispersion	<b>1727</b>
<b>A. Demirci:</b> Optimizing the Physical and Technological Properties of Cement Additives in Concrete Mixtures	<b>1737</b>
<b>LETTER TO THE EDITOR</b>	<b>1745</b>
<b>ERRATA</b>	<b>1747</b>
<b>NEWS ITEMS</b>	<b>1749</b>

1996

Volume 26, Number 12

December

## COMMUNICATED PAPERS

<b>Kingshan Zhou, Xian Lin, Mingjiang Huo, Yang Zhang:</b> The Hydration of Saline Oil-Well Cement	<b>1753</b>
<b>R.K. Dhir, M.R. Jones, M.J. McCarthy:</b> Binder Content Influences on Chloride Ingress in Concrete	<b>1761</b>
<b>R.K. Dhir, M.A.K. El-Mohr, T.D. Dyer:</b> Chloride Binding in GGBS Concrete	<b>1767</b>
<b>J.J. Beaudoin, Ping Gu, W. Lin:</b> Flexural Behavior of Cement Systems Reinforced with High Aspect Ratio Aragonite Micro-Fibres	<b>1775</b>

## REFEREED PAPERS

<b>W. Morris, E.I. Moreno, A.A. Sagüés:</b> Practical Evaluation of Resistivity of Concrete in Test Cylinders Using a Wenner Array Probe	<b>1779</b>
<b>Caijun Shi:</b> Strength, Pore Structure and Permeability of Alkali-Activated Slag Mortars	<b>1789</b>
<b>I. Maki, M. Ichikawa, H. Yoshida, T. Yoshida:</b> Anisotropic Light Absorption of the Ferrite Solid Solutions ( $\text{Ca}_2(\text{Fe}_{1-x}\text{Al}_x)\text{O}_5$ )	<b>1801</b>
<b>Mitsunori Kawamura, Katsunobu Takeuchi:</b> Alkali-Silica Reaction and Pore Solution Composition in Mortars in Sea Water	<b>1809</b>
<b>F.M. Miller, F.J. Tang:</b> The Distribution of Sulfur in Present-Day Clinkers of Variable Sulfur Content	<b>1821</b>
<b>A. Delagrave, J. Marchand, E. Samson:</b> Prediction of Diffusion Coefficients in Cement-Based Materials on the Basis of Migration Experiments	<b>1831</b>
<b>Bernadett Kolláth, A. Zoltán Juhász:</b> Mechanochemical Capillary Reactions in Partly Dehydrated Gypsum and Aluminium Hydroxide Interground Powder Mixtures	<b>1843</b>

<b>NEWS ITEMS</b>	<b>1859</b>
<b>INDEX TO VOLUME 26</b>	<b>1863</b>
<b>KEYWORD INDEX</b>	<b>1872</b>
<b>AUTHOR INDEX</b>	<b>1875</b>

1997

Volume 27, Number 1

January

## COMMUNICATED PAPERS

<b>J. Pera, L. Coutaz, J. Ambroise, M. Chabannet:</b> Incinerator Bottom Ash, NaOH Treatment, Concrete	<b>1</b>
<b>G. Li, P. Le Bescop, M. Moranville-Regourd:</b> Synthesis of the U-Phase ( $4\text{CaO} \cdot 0.9\text{Al}_2\text{O}_3 \cdot 1.1\text{SO}_3 \cdot 0.5\text{Na}_2\text{O} \cdot 16\text{H}_2\text{O}$ )	<b>7</b>

<b>Ilker Bekir Topçu:</b> Semi Lightweight Concretes Produced by Volcanic Slags	15
<b>J.J. Beaudoin, P. Gu, R.E. Myers:</b> Flexural Strength of Cement Paste Composites Containing Micron and Sub-Micron Nickel Particulates	23

#### REFEREED PAPERS

<b>M. Kawamura, S. Komatsu:</b> Behavior of Various Ions in Pore Solution in NaCl-Bearing Mortar With and Without Reactive Aggregate at Early Ages	29
<b>H. Uchikawa, S. Hanehara, D. Sawaki:</b> The Role of Steric Repulsive Force in the Dispersion of Cement Particles in Fresh Paste Prepared with Organic Admixture	37
<b>W. Kurdowski, S. Duszak, B. Trybalska:</b> Belite Produced by Means of Low-Temperature Synthesis	51
<b>S. Maximilien, J. Péra, M. Chabannet:</b> Study of the Reactivity of Clinkers By Means of the Conductometric Test	63
<b>Y. Xi, D.D. Siemer, B.E. Scheetz:</b> Strength Development, Hydration Reaction and Pore Structure of Autoclaved Slag Cement with Added Silica Fume	75
<b>W. Nocun-Wczelik:</b> Effect of Some Inorganic Admixtures on the Formation and Properties of Calcium Silicate Hydrates Produced in Hydrothermal Conditions	83
<b>Md. A.I. Laskar, R. Kumar, B. Bhattacharjee:</b> Some Aspects of Evaluation of Concrete Through Mercury Intrusion Porosimetry	93
<b>Q. Jin, W. Liu, L. Tong:</b> Investigations on Concrete Railway Ties Suffering From Alkali-Silica Reaction	107
<b>B. Zhang, K. Wu:</b> Residual Fatigue Strength and Stiffness of Ordinary Concrete Under Bending	115
<b>M. Drábik, L. Gáliková, G.B. Hix, A.G. Pearce, R.C.T. Slade, K.E. Young:</b> Model MDFs Related to Sulfobelitic Systems: Studies by $^{57}\text{Fe}$ Mössbauer and Electrical Impedance Techniques	127
<b>S. Wild, J.M. Khatib:</b> Portlandite Consumption in Metakaolin Cement Pastes and Mortars	137
<b>N.J. Coleman, C.L. Page:</b> Aspects of the Pore Solution Chemistry of Hydrated Cement Pastes Containing Metakaolin	147

<b>DISCUSSIONS</b>	155
<b>NEWS ITEMS</b>	161

1997

Volume 27, Number 2

February

#### COMMUNICATED PAPERS

<b>T. Özturan, C. Çeçen:</b> Effect of Coarse Aggregate Type on Mechanical Properties of Concretes with Different Strengths	165
<b>J.-H. Kim, R.E. Robertson:</b> Prevention of Air Void Formation in Polymer-Modified Cement Mortar By Pre-Wetting	171
<b>İ.B. Topçu:</b> Assessment of the Brittleness Index of Rubberized Concretes	177

#### REFEREED PAPERS

<b>O. Stráněl, T. Sebök:</b> Relationships Between the Properties of Ligninsulphonates and Parameters of Modified Samples with Cement Binders Part I. Characterizing Ligninsulphonates and Studying their Sorption Properties	185
<b>R.L. Hill, S.L. Sarkar, R.F. Rathbone, J.C. Hower:</b> An Examination of Fly Ash Carbon and Its Interactions with Air Entraining Agent	193
<b>F. Türker, F. Aköz, S. Koral, N. Yüzer:</b> Effects of Magnesium Sulfate Concentration on the Sulfate Resistance of Mortars With and Without Silica Fume	205
<b>A. Maclas, A. Kindness, F.P. Glasser:</b> Impact of Carbon Dioxide on the Immobilization Potential of Cemented Wastes: Chromium	215
<b>A. Güleç, T. Tulun:</b> Physico-Chemical and Petrographical Studies of Old Mortars and Plasters of Anatolia	227
<b>J.S. Lumley:</b> ASR Suppression by Lithium Compounds	235

<b>C. Hua, A. Ehrlacher, P. Acker:</b> Analyses and Models of the Autogenous Shrinkage of Hardening Cement Paste II. Modelling at Scale of Hydrating Grains	245
<b>M.E. Gaze:</b> The Effects of Varying Gypsum Content on Thaumasite Formation in a Cement: Lime: Sand Mortar at 5 °C	259
<b>R.Z. Al-Zaid, F.H. Al-Sugair, A.I. Al-Negheimish:</b> Investigation of Potential Uses of Electric-Arc Furnace Dust (EAFD) in Concrete	267
<b>N.Q. Feng, S.Y.N. Chan, Z.S. He, M.K.C. Tsang:</b> Shale Ash Concrete	279
<b>X. Lu:</b> Application of the Nernst-Einstein Equation to Concrete	
<b>A.B. Kudryavtsev, T.V. Kouznetsova:</b> Hydration Kinetics of Modified Calcium Sulphoaluminate Oxides Studied by Aluminum-27 NMR Spectroscopy and Proton Magnetic Relaxation: Experimental Data	303

<b>NEWS ITEMS</b>	311
-------------------	-----

1997

Volume 27, Number 3

March

**COMMUNICATED PAPERS**

<b>G. Qian, G. Xu, H. Li, A. Li:</b> Mg-Xonotlite and its Coexisting Phases	315
<b>L. Tong, M. Deng, X. Lan, M. Tang:</b> A Case Study of Two Airport Runways Affected by Alkali-Carbonate Reaction Part One: Evidence of Deterioration and Evaluation of Aggregates	321
<b>L. Tong, M. Tang:</b> A Case Study of Two Airport Runways Affected by Alkali-Carbonate Reaction Part Two: Microstructural Investigations	329
<b>J.M. Díez, J. Madrid, A. Macaís:</b> Characterization of Cement-Stabilized Cd Wastes	337

**REFEREED PAPERS**

<b>M. Mouret, A. Bascoul, G. Escadeillis:</b> Drops in Concrete Strength in Summer Related to the Aggregate Temperature	345
<b>A. Fernández-Jiménez, F. Puertas:</b> Alkali-Activated Slag Cements: Kinetic Studies	359
<b>B. Samet, S.L. Sarkar:</b> The Influence of Calcium Sulfate Form on the Initial Hydration of Clinkers Containing Different Alkali Combinations	369
<b>K. Wang, D.C. Jansen, S.P. Shah, A.F. Karr:</b> Permeability Study of Cracked Concrete	381
<b>W.-H. Huang:</b> Properties of Cement-Fly Ash Grout Admixed with Bentonite, Silica Fume, or Organic Fiber	395
<b>X. Feng, N. Yang:</b> Variations of the Anions Polymerization Degree of $\text{CaO-SiO}_2\text{-P}_2\text{O}_5\text{-H}_2\text{O}$ CBC Materials During Hydration	407
<b>F. Vodák, R. Černý, J. Drchalová, Š. Hošková, O. Kapičková, O. Michalko, P. Semerák, J. Toman:</b> Thermophysical Properties of Concrete for Nuclear-Safety Related Structures	415
<b>T. Pheeraphan, C.K.Y. Leung:</b> Freeze-Thaw Durability of Microwave Cured Air-Entrained Concrete	427
<b>M. Zhu, R.C. Wetherhold, D.D.L. Chung:</b> Evaluation of the Interfacial Shear in a Discontinuous Carbon Fiber/Mortar Matrix Composite	437
<b>E. Ballatore, P. Bocca:</b> Variations in the Mechanical Properties of Concrete Subjected to Low Cyclic Loads	453
<b>C.K.Y. Leung, T. Pheeraphan:</b> Determination of Optimal Process for Microwave Curing of Concrete	463

<b>LETTER TO THE EDITOR</b>	473
-----------------------------	-----

<b>NEWS ITEMS</b>	475
-------------------	-----

1997

Volume 27, Number 4

April

**COMMUNICATED PAPERS**

<b>J.M. Díez, J. Madrid, A. Macías:</b> Characterization of Cement-Stabilized Cd Wastes	479
<b>D. Wang, Z. Chen:</b> On Predicting Compressive Strengths of Mortars with Ternary Blends of Cement, GGBFS and Fly Ash	493

- E.J. Garboczi:** Stress, Displacement, and Expansive Cracking Around a Single Spherical Aggregate Under Different Expansive Conditions 495

#### REFEREED PAPERS

- A.B. Kudryavtsev, T.V. Kouznetsova, W. Linert, G. Hunter:** On the Possibilities of *In Situ* Studies of the Hydration of Aluminate Cements Using Wideline  $^{27}\text{Al}$  NMR Spectroscopy 501
- Ma.S. Hernández, A. Guerrero, S. Goñi, Ma.P. Lorenzo:** Effect of the Temperature on the Leaching Performance of the Cement-Based Immobilization Systems: Sulfate and Chloride Behavior 515
- R. Wasserman, A. Bentur:** Effect of Lightweight Fly Ash Aggregate Microstructure on the Strength of Concretes 525
- C. Carde, R. François:** Effect of the Leaching of Calcium Hydroxide from Cement Paste on Mechanical and Physical Properties 539
- R. Berliner, C. Ball, P.B. West:** Neutron Powder Diffraction Investigation of Model Cement Compounds 551
- V. Lilkov, E. Dimitrova, O.E. Petrov:** Hydration Process of Cement Containing Fly Ash and Silica Fume: The First 24 Hours 577
- K. Hanečka, O. Koronthálová, P. Matiašovský:** The Carbonation of Autoclaved Aerated Concrete 589
- P.S. Mangat, M.C. Limbachiya:** Repair Material Properties for Effective Structural Application 601
- M. Frías, M.I. Sánchez de Rojas:** Microstructural Alterations in Fly Ash Mortars: Study on Phenomena Affecting Particle and Pore Size 619

#### DISCUSSIONS

- I. Odler** 629
- R. Yang, C.D. Lawrence, J.H. Sharp** 631
- J. Bensted** 635
- A. Saasen** 637

- NEWS ITEMS** 639

1997

Volume 27, Number 5

May

#### COMMUNICATED PAPERS

- X. Fu, D.D.L. Chung:** Improving the Bond Strength Between Steel Rebar and Concrete by Ozone Treatment of Rebar and Polymer Addition to Concrete 643
- J. Hou, D.D.L. Chung:** Cathodic Protection of Steel Reinforced Concrete Facilitated by Using Carbon Fiber Reinforced Mortar or Concrete 649
- K. Ikeda:** Preparation of Fly Ash Monoliths Consolidated with a Sodium Silicate Binder at Ambient Temperature 657
- E.M. Gartner:** A Proposed Mechanism for the Growth of C-S-H During the Hydration of Tricalcium Silicate 665
- S. Tsivilis, G. Kakali:** A Study on the Grindability of Portland Cement Clinker Containing Transition Metal Oxides 673
- J. Hou, X. Fu, D.D.L. Chung:** Improving Both Bond Strength and Corrosion Resistance of Steel Rebar in Concrete by Water Immersion or Sand Blasting of Rebar 679

#### REFEREED PAPERS

- A. Wang, C. Zhang, N. Zhang:** Study of the Influence of the Particle Size Distribution on the Properties of Cement 685
- S. Wild, J.M. Khatib, M. O'Farrell:** Sulphate Resistance of Mortar, Containing Ground Brick Clay Calcined at Different Temperatures 697
- F.A. Shaker, A.S. El-Dieb, M.M. Reda:** Durability of Styrene-Butadiene Latex Modified Concrete 711
- M.H. Ozkul, A. Baskoca, S. Artirma:** Influenced of Prolonged Agitation on Water Movement Related Properties of Water Reducer and Retarder Admixed Concretes 721
- S. Mwaluwinga, T. Ayano, K. Sakata:** Influence of Urea in Concrete 733

<b>N.S. Martys, C.F. Ferraris:</b> Capillary Transport in Mortars and Concrete	747
<b>D. Breyse, B. Gérard:</b> Modelling of Permeability in Cement-Based Materials: Part 1-Uncracked Medium	761
<b>S. Martinez-Ramirez, F. Puertas, M.T. Blanceo-Varela, G.E. Thompson:</b> Studies on Degradation of Lime Mortars in Atmospheric Simulation Chambers	777
<b>B.B. Sabir, S. Wild, M. Asili:</b> On the Tortuosity of the Fracture Surface in Concrete	785
<b>BOOK REVIEW</b>	797
<b>BOOK REVIEW</b>	799
<b>BOOK REVIEW</b>	801
<b>NEWS ITEMS</b>	803

1997

Volume 27, Number 6

June

## COMMUNICATED PAPERS

<b>Z. Heren, H. Ölmez:</b> The Influence of Ethanolamines on the Surface Properties of Portland Cement Pastes	805
<b>S. Chatterji, N. Thaulow:</b> Unambiguous Demonstration of Destructive Crystal Growth Pressure	811
<b>K. Vivekanandam, I. Patnaikuni:</b> Transition Zone in High Performance Concrete During Hydration	817
<b>M.R. Jones, R.K. Dhir, B.J. Magee:</b> Concrete Containing Ternary Blended Binders: Resistance to Chloride Ingress and Carbonation	825
<b>J. Li, P. Tian:</b> Effect of Slag and Silica Fume on Mechanical Properties of High Strength Concrete	833
<b>X. Fu, D.D.L. Chung:</b> Reversible Decrease of the Flexural Dynamic Modulus of Cement Pastes upon Heating	839
<b>X. Fu, E. Ma, D.D.L. Chung, W.A. Anderson:</b> Self-Monitoring in Carbon Fiber Reinforced Mortar by Reactance Measurement	845
<b>J.-Z. Zhang, N.R. Buenfeld:</b> Presence and Possible Implications of a Membrane Potential in Concrete Exposed to Chloride Solution	853
<b>S.H. Okba, A.S. El-Dieb, M.M. Reda:</b> Evaluation of the Corrosion Resistance of Latex Modified Concrete (LMC)	861

## REFEREED PAPERS

<b>P.-V. Vlachou, J.-M. Piau:</b> The Influence of the Shear Field on the Microstructural and Chemical Evolution of an Oil Well Cement Slurry and Its Rheometric Impact	869
<b>F.-L. Gao:</b> A New Way of Predicting Cement Strength—Fuzzy Logic	883
<b>D. Fragoulis, E. Chaniotakis, M.G. Stamatakis:</b> Zeolitic Tuffs of Kimolos Island, Aegean Sea, Greece and Their Industrial Potential	889
<b>S. Grzeszczyk, G. Lipowski:</b> Effect of Content and Particle Size Distribution of High-Calcium Fly Ash on the Rheological Properties of Cement Pastes	907
<b>V. Kasselouri, Ch. Ftikos:</b> The Effect of $\text{MoO}_3$ on the $\text{C}_3\text{S}$ and $\text{C}_3\text{A}$ Formation	917
<b>M.J. Shannag, R. Brincker, W. Hansen:</b> Pullout Behavior of Steel Fibers from Cement-Based Composites	925
<b>C. Dehghanian, M. Arjemandi:</b> Influence of Slag Blended Cement Concrete on Chloride Diffusion Rate	937
<b>M. Singh, M. Garg:</b> Retarding Action of Various Chemicals on Setting and Hardening Characteristics of Gypsum Plaster at Different pH	947

## DISCUSSIONS

<b>O. Amiri, A. Ait-Mokhtar, A. Seigneurin:</b> A Complement to the Discussion of A. Xu and S. Chandra about the Paper "Calculation of Chloride Coefficient Diffusion in Concrete from Ionic Migration Measurements" By C. Andrade	951
--	-----



- A. Xu:** A Reply to the Discussion of the Discussion of the Paper: "Calculation of Chloride Coefficient Diffusion in Concrete From Ionic Migration Measurements" 959  
By O. Amiri et al.
- P.J. Tumidajski, A.S. Schumacher:** Discussion of the Paper "On the Relationship Between the Formation Factor and Propan-2-O1 Diffusivity in Mortars" 963
- P.J. Tumidajski:** A Reply to a Discussion by B. Batchelor of the Paper "On the Relationship Between the Formation Factor and Propan-2-O1 Diffusivity in Mortars" 965

## NEWS ITEMS 967

1997

Volume 27, Number 7

July

## COMMUNICATED PAPERS

- C. Carde, R. François:** Effect of ITZ Leaching on Durability of Cement-Based Materials 971
- M.M. Ali, S.K. Agarwal, S.K. Handoo:** Diffusion Studies in Formation and Sintering of  $\text{CaAl}_2\text{O}_4$  and  $\text{BaAl}_2\text{O}_4$ : A Comparative Evaluation 979
- D. Li, X. Fu, X. Wu, M. Tang:** Durability Study of Steel Slag Cement 983
- Z. Lu, K. Tan:** Activity of  $\beta\text{-C}_2\text{S}$  Under Different Sintering Conditions 989

## REFEREED PAPERS

- V.T. Ngala, C.L. Page:** Effects of Carbonation on Pore Structure and Diffusional Properties of Hydrated Cement Pastes 995
- Y. Maltais, J. Marchand:** Influence of Curing Temperature on Cement Hydration and Mechanical Strength Development of Fly Ash Mortars 1009
- C.C. Yang:** Approximate Elastic Moduli of Lightweight Aggregate 1021
- J. Qian, H. Luo:** Size Effect on Fracture Energy of Concrete Determined by Three-Point Bending 1031
- M. Singh, S.N. Upadhyay, P.M. Prasad:** Preparation of Iron Rich Cements Using Red Mud 1037
- A.K. Suryavanshi, R.N. Swamy:** An Elevation of Controlled Permeability Formwork for Long-Term Durability of Structural Concrete Elements 1047
- M.A. González, E.F. Irassar:** Ettringite Formation in Low  $\text{C}_3\text{A}$  Portland Cement Exposed to Sodium Sulfate Solution 1061
- D.S. Klimesch, A. Ray:** Autoclaved Cement-Quartz Pastes: The Effects on Chemical and Physical Properties When Using Ground Quartz with Different Surface Areas Part II: Results of Accelerated Carbonation 1073
- X. Cheng, J. Yu, F. Liu, Y. Yue, J. Chang:** Predictions on the Formation and Bond Performance of Some Ettringites by a Quantum Chemistry Method 1085
- Y. Zhang, W. Sun, L. Shang:** Mechanical Properties of High Performance Concrete Made With High Calcium High Sulfate Fly Ash 1093
- A. Bentur, A. Peled, D. Yankelevsky:** Enhanced Bonding of Low Modulus Polymer Fibers-Cement Matrix by Means of Crimped Geometry 1099
- M.P. Lutz, P.J.M. Monteiro, R.W. Zimmerman:** Inhomogeneous Interfacial Transition Zone Model for the Bulk Modulus of Mortar 1113
- M. Ichikawa, M. Kanaya:** Effects of Minor Components and Heating Rates on the Fine Textures of Alite in Portland Cement Clinker 1123

## NEWS ITEMS 1131

## COMMUNICATED PAPERS

- İ.B. Topçu, N. Avcular:** Analysis of Rubberized Concrete as a Composite Material 1135  
**P. Domone, H.-W. Chai:** Testing of Binders for High Performance Concrete 1141  
**Z.-Q. Shi, D.D.L. Chung:** Improving the Abrasion Resistance of Mortar by Adding Latex and Carbon Fibers 1149

## REFEREED PAPERS

- P. Frantzis, R. Baggott:** Rheological Characteristics of Retarded Magnesia Phosphate Cement 1155  
**A. Emanuelson, S. Hansen:** Distribution of Iron Among Ferrite Hydrates 1167  
**R.P. Khatri, V. Sirivivatnanon, J.L. Yang:** Role of Permeability in Sulphate Attack 1179  
**M. Keddad, H. Takenouti, X.R. Nóvoa, C. Andrade, C. Alonso:** Impedance Measurements of Cement Paste 1191  
**A. Diouri, A. Boukhari, J. Aride, F. Puertas, T. Vazquez:** Stable  $\text{Ca}_3\text{SiO}_5$  Solid Solution Containing Manganese and Phosphorous 1203  
**E. Proverbio, F. Carassiti:** Evaluation of Chloride Content in Concrete by X-ray Fluorescence 1213  
**L'. Bágel', V. Živica:** Relationship Between Pore Structure and Permeability of Hardened Cement Mortars: On the Choice of Effective Pore Structure Parameter 1225  
**W. Ma, P.W. Brown:** Hydrothermal Reactions of Fly Ash with  $\text{Ca}(\text{OH})_2$  and  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$  1237  
**S. Asavapisit, G. Fowler, C.R. Cheeseman:** Solution Chemistry During Cement Hydration in the Presence of Metal Hydroxide Wastes 1249  
**F. Saucier, F. Claireaux, D. Cusson, M. Pigeon:** The Challenge of Numerical Modelling of Strains and Stresses in Concrete Repairs 1261  
**A.B. Yilmaz, B. Yazici, M. Erbil:** The Effects of Sulphate Ion on Concrete and Reinforced Concrete 1271  
**M. Tokyay, M. Özdemir:** Specimen Shape and Size Effect on the Compressive Strength of Higher Strength Concrete 1281

## DISCUSSIONS

- J. Bensted:** A Discussion of the Paper "The Hydration of Saline Oilwell Cement" 1291  
 By X. Zhou, X. Lin, M. Huo and Y. Zhang  
**X. Lin, X. Zhou, M. Huo:** A Reply to Discussion of the Paper "The Hydration of Saline Oilwell Cement" By John Bensted 1293

## NEWS ITEMS 1295

## COMMUNICATED PAPERS

- Y. Fu, J. Ding, J.J. Beaudoin:** Expansion of Portland Cement Mortar Due to Internal Sulfate Attack 1299  
**M. Saad Morsy, S.A. Abo El-Enein, G.B. Hanna:** Microstructure and Hydration Characteristics of Artificial Pozzolana-Cement Pastes Containing Burnt Kaolinite Clay 1307  
**X. Fu, D.D.L. Chung:** Effect of Curing Age on the Self-Monitoring Behavior of Carbon Fiber Reinforced Mortar 1313

## REFEREED PAPERS

- H.C. Gran, E.W. Hansen:** Effects of Drying and Freeze/Thaw Cycling Probed by  $^1\text{H}$ -NMR 1319  
**K.M. Nemati, P.J.M. Monteiro:** A New Method to Observe Three-Dimensional Fractures in Concrete Using Liquid Metal Porosimetry Technique 1333  
**P. Garcés, E.G. Alcocel, S. Chinchón, C.G. Andreu, J. Alcaide:** Effect of Curing Temperature in Some Hydration Characteristics of Calcium Aluminate Cement Compared with those of Portland Cement 1343

- K.J. Folliard, N.S. Berke:** Properties of High-Performance Concrete 1357  
Containing Shrinkage-Reducing Admixture
- J. Payá, J. Monzó, M.V. Borrachero, F. Peris, E. González-Lopez:** Mechanical Treatments of Fly Ashes. 1365  
Part III: Studies on Strength Development of Ground Fly Ashes (GFA) — Cement Mortars
- J. Lombardi, P. Massard et A. Perruchot:** Measure Expérimentale de la Cinétique de 1379  
Formation d'un Gel Silicocalcique, Produit de la Réaction Alcalis-Silice
- G.K.D. Pushpalal, T. Kobayashi, M. Hasegawa:** High Alumina Cement-Phenol Resin Composite: 1393  
Water Resistivity and Effect of Post Hydration of Unreacted Cement on Durability
- G.D. Guthrie, Jr., J.W. Carey:** A Simple Environmentally Friendly, and Chemically Specific 1407  
Method for the Identification and Evaluation of the Alkali-Silica Reaction
- X. Zhang, Y. Yang, C.K. Ong:** Study of Early Hydration of OPC-HAC Blends by 1419  
Microwave and Calorimetry Technique
- N. Belaribi, G. Pons, B. Perrin:** Delayed Behaviour of Concrete: Influence of Additions and 1429  
Aggregate Characteristics in Relation to Moisture Variations
- Q. Yu, S. Sugita, X. Feng, J. Mi:** On the Preparation of Single Crystals of  $11\text{CaO} \cdot 7\text{Al}_2\text{O}_3 \cdot \text{CaF}_2$  and the 1439  
Confirmation of Its Crystal Structure

## DISCUSSIONS

- S. Chatterji** 1451  
**H. Uchikawa, S. Hanehara, D. Sawaki** 1453

## NEWS ITEMS

1457

1997

Volume 27, Number 10

October

## SPECIAL ISSUE

**Papers Presented at the Materials Research Society Symposium on Structure-Property  
Relationships in Hardened Cement Paste and Composites**

Boston, Massachusetts, December 2–6, 1996

## EDITORIAL

- D.M. Roy:** *Special Issue:* Proceedings of MRS Symposium on "Structure-Property Relationships in 1463  
Hardened Cement Pastes and Composites"

## REFEREED PAPERS

- S.J. Lokhorst, K. van Breugel:** Simulation of the Effect of Geometrical Changes of the 1465  
Microstructure on the Deformation Behaviour of Hardening Concrete
- F. Lange, H. Mortel, V. Rudert:** Dense Packing of Cement Pastes and Resulting Consequences on 1481  
Mortar Properties
- E.A.B. Koenders, K. van Breugel:** Numerical Modelling of Autogenous Shrinkage of 1489  
Hardening Cement Paste
- W. Jiang, M.R. Silsbee, D.M. Roy:** Similarities and Differences of Microstructure and 1501  
Macro Properties between Portland and Blended Cement
- J. Pera, R. Boumaza, J. Ambroise:** Development of a Pozzolanic Pigment from Red Mud 1513
- P. Lovera, P. Le Bescop, F. Adenot, G. Li, T. Tanaka, E. Owaki:** Physico-Chemical 1523  
Transformations of Sulphated Compounds during Leaching of Highly Sulphated  
Cemented Wastes
- J. Pera, G. Thievenin, M. Chabannet:** Design of a Novel System Allowing the Selection of an 1533  
Adequate Binder for Solidification/Stabilization of Wastes

<b>J.P. Bournazel, M. Moranville:</b> Durability of Concrete: The Crossroad Between Chemistry and Mechanics	1543
<b>C.F. Ferraris, E.J. Garboczi, F.L. Davis, J.R. Clifton:</b> The Effect of Stress Relaxation, Self-Dessication, and Water Absorption on the Alkali-Silica Reaction in Low Water/Cement Ratio Mortars	1553
<b>J. LaRosa Thompson, M.R. Silsbee, P.J. Gill, B.E. Scheetz:</b> Characterization of Silicate Sealers on Concrete	1561
<b>R. Tixier, R. Devaguptapu, B. Mobasher:</b> Effect of Copper Slag on the Hydration and Mechanical Properties of Cementitious Mixtures	1569
<b>P. Faucon, J.M. Delayo, J. Virlet, J.F. Jacquinet, F. Adenot:</b> Study of the Structural Properties of the C-S-H(I) by Molecular Dynamics Simulation	1581
<b>M. Masi, D. Colella, G. Radaiili, L. Bertolini:</b> Simulation of Chloride Penetration in Cement-Based Materials	1591
<b>C.M. Neubauer, H.M. Jennings, E.J. Garboczi:</b> Mapping Drying Shrinkage Deformations in Cement-Based Materials	1603

## REPORT

<b>S. Chandra:</b> Report of the 10th International Congress on the Chemistry of Cement	1613
---	------

## BOOK REVIEWS

	1619
--	------

## NEW ITEMS

	1621
--	------

1997

Volume 27, Number 11

November

<b>G.M. Idorn:</b> Comments on the Contents of Cement and Concrete Research, Vol. 27, No. 6, July 1997	1625
--	------

## COMMUNICATED PAPERS

<b>I. Casanova, A. Aguado, L. Agulló:</b> Aggregate Expansivity due to Sulfide Oxidation — II. Physico-chemical Modeling of Sulfate Attack	1627
<b>R.K. Dhir, M.A.K. El-Mohr, T.D. Dyer:</b> Developing Chloride Resisting Concrete Using PFA	1633

## REFEREED PAPERS

<b>J.O. Odigure:</b> Preparation of Cement Raw Mix Containing Metallic Particles	1641
<b>S. Börjesson, A. Emrén, C. Ekberg:</b> A Thermodynamic Model for the Calcium Silicate Hydrate Gel, Modelled as a Non-Ideal Binary Solid Solution	1649
<b>F.M. Kilinçkale:</b> Influence of Na <sub>2</sub> SO <sub>4</sub> Solutions on the Capillary Absorption and Shrinkage of Mortars Made with Cement Containing Silica Fume	1659
<b>B. Persson:</b> Long-Term Effect of Silica Fume on the Principal Properties of Low-Temperature-Cured Ceramics	1667
<b>C.G. Rowbottom, W.B. Gilboy, D.J. Hannant:</b> Determination of Cement Content of Cement Blends Using Gamma-Ray Spectroscopy	1681
<b>X. Ji, S.Y.N. Chan, N. Feng:</b> Fractal Model for Simulating the Space-Filling Process of Cement Hydrates and Fractal Dimensions of Pore Structure of Cement-Based Materials	1691
<b>W. Zhu, P.J.M. Bartos:</b> Assessment of Interfacial Microstructure and Bond Properties in Aged GRC Using a Novel Microindentation Method	1701
<b>M. Tüfekçi, A. Demirbaş, H. Genç:</b> Evaluation of Steel Furnace Slags as Cement Additives	1713
<b>J.-K. Kim, C.-S. Lee, C.-K. Park, and S.-H. Eo:</b> The Fracture Characteristics of Crushed Limestone Sand Concrete	1719
<b>V. Pavlík and S. Unčík:</b> The Rate of Corrosion of Hardened Cement Pastes and Mortars with Additive of Silica Fume in Acids	1731

**A.A. Sagüés, E.I. Moreno, C. Andrade:** Evolution of pH During In-Situ Leaching in Small Concrete Cavities 1747

**Y. Shao, C.J. Lynsdale, C.D. Lawrence, J.H. Sharp:** Deterioration of Heat-Cured Mortars Due to the Combined Effect of Delayed Ettringite Formation and Freeze/Thaw Cycles 1761

## DISCUSSIONS

**J. Bensted, J. Munn** 1773

**J.J. Beaudoin** 1777

**BOOK REVIEWS** 1779

**NEWS ITEMS** 1781

1997

Volume 27, Number 12

December

## COMMUNICATED PAPERS

**M.U.K. Afridi, Y. Ohama, K. Demura, M.Z. Iqbal:** Hydrogarnet-type Cubic Crystals in Polymer-Modified Mortars 1787

**G. Qian, A. Li, G. Xu, H. Li:** Hydrothermal Products of the  $C_3MS_2$ - $C_{12}A_7$ -MgO System 1791

**X. Fu, D.D.L. Chung:** Effects of the Silica Fume, Latex, Methylcellulose, and Carbon Fibers on the Thermal Conductivity and Specific Heat of Cement Paste 1799

**X. Fu, D.D.L. Chung:** Improving the Bond Strength Between Steel Rebar and Concrete by Increasing the Water/Cement Ratio 1805

**X. Fu, D.D.L. Chung:** Effect of Corrosion on the Bond Between Concrete and Steel Rebar 1811

**İ.B. Topçu:** Physical and Mechanical Properties of Concretes Produced with Waste Concrete 1817

**I. Rouseková, A. Bajza, V. Živica:** Silica Fume-Basic Blast Furnace Slag Systems Activated by an Alkali Silica Fume Activator 1825

## REFEREED PAPERS

**M. Zhu, D.D.L. Chung:** Improving Brick-to-Mortar Bond Strength by the Addition of Carbon Fibers to the Mortar 1829

**Y. Xu:** The Influence of Sulphates on Chloride Binding and Pore Solution Chemistry 1841

**A.M. Alshamsi:** Microsilica and Ground Granulated Blast Furnace Slag Effects on Hydration Temperature 1851

**N. Bouzoubaâ, M.H. Zhang, A. Bilodeau, V.M. Malhotra:** The Effect of Grinding on the Physical Properties of Fly Ashes and a Portland Cement Clinker 1861

**M.L. Allan:** Rheology of Latex-Modified Grouts 1875

**Y. Zhang, W. Sun, L. Shang, G. Pan:** The Effect of High Content of Fly Ash on the Properties of Glass Fiber Reinforced Cementitious Composites 1885

**İ.B. Topçu, N. Avcular:** Collision Behaviours of Rubberized Concrete 1893

**P.J.M. Monteiro, K. Wang, G. Sposito, M.C. dos Santos, W.P. de Andrade:** Influence of Mineral Admixtures on the Alkali-Aggregate Reaction 1899

**F.M. Kiliçkale:** The Effect of  $MgSO_4$  and HCl Solutions on the Strength and Durability of Pozzolan Cement Mortars 1911

**K. Sakr, M.S. Sayed, N. Hafez:** Comparison Studies Between Cement and Cement-Kaolinite Properties for Incorporation of Low-Level Radioactive Wastes 1919

**NEWS ITEMS** 1927

**INDEX TO VOLUME 27** 1931

**AUTHOR INDEX** 1942

**KEYWORD INDEX** 1945



## COMMUNICATIONS

- G. Qian, G. Xu, H. Li, A. Li:** The Effect of Autoclave Temperature on the Expansion and Hydrothermal Products of High-MgO Blended Cements 1
- T.J. Zhao, Z.H. Zhou, J.Q. Zhu, N.Q. Feng:** An Alternating Test Method for Concrete Permeability 7
- A. Bajza, I. Rouseková, V. Živica:** Silica Fume-Sodium Hydroxide Binding Systems 13
- R. Sersale, G. Frigione, L. Bonavita:** Acid Depositions and Concrete Attack: Main Influences 19
- A. Shayan:** Effects of NaOH and NaCl Solutions and Temperature on the Behavior of Specimens Subjected to Accelerated AAR Tests 25

## PAPERS

- W.K. Yip:** Generic Form of Stress-Strain Equations for Concrete 33
- S. Chandra, L. Eklund, R.R. Villareal:** Use of Cactus in Mortars and Concrete 41
- H.Y. Ghorab, E.A. Kishar, S.H. Abou Elfetouh:** Studies on the Stability of the Calcium Sulfoaluminate Hydrates. Part II: Effect of Alite, Lime, and Monocarboaluminate Hydrate 53
- I. Tanaka, N. Suzuki, Y. Ono, M. Koishi:** Fluidity of Spherical Cement and Mechanism for Creating High Fluidity 63
- N. Segre, E. Tonella, I. Joeke:** Evaluation of the Stability of Polypropylene Fibers in Environments Aggressive to Cement-Based Materials 75
- J.M. Khatib, S. Wild:** Sulphate Resistance of Metakaolin Mortar 83
- J. Vilardell, A. Aguado, L. Agullo, R. Gettu:** Estimation of the Modulus of Elasticity for Dam Concrete 93
- B. Chiaia, J.G.M. van Mier, A. Vervuurt:** Crack Growth Mechanisms in Four Different Concretes: Microscopic Observations and Fractal Analysis 103
- H. Toutanji, Z. Bayasi:** Effects of Manufacturing Techniques on the Flexural Behavior of Steel Fiber-Reinforced Concrete 115
- S. Martínez-Ramírez, F. Puertas, M.T. Blanco-Varela, G.E. Thompson:** Effect of Dry Deposition of Pollutants on the Degradation of Lime Mortars with Sepiolite 125
- P. Yan, Y. You:** Studies on the Binder of Fly Ash-Fluorogypsum-Cement 135
- C.-K. Park, M.R. Silsbee, D.M. Roy:** Setting Reaction and Resultant Structure of Zinc Phosphate Cement in Various Orthophosphoric Acid Cement-Forming Liquids 141

## DISCUSSIONS

- W.G. Hime** 151
- S. Chatterji, N. Thaulow** 153

- BOOK REVIEW** 155
- NEWS ITEMS** 157

## COMMUNICATIONS

- K.O. Kjellsen, E. Helsing Atlassi:** X-Ray Microanalysis of Hydrated Cement: Is the Analysis Total Related to Porosity? 161
- X. Fu, D.D.L. Chung:** Decrease of the Bond Strength Between Steel Rebar and Concrete with Increasing Curing Age 167
- G. Pan, W. Sun, D. Ding, Y. Zhang:** Experimental Study on the Micro-Aggregate Effect in High-Strength and Super-High-Strength Cementitious Composites 171
- P. Domone:** The Slump Flow Test for High-Workability Concrete 177

- X. Fu, W. Lu, D.D.L. Chung:** Improving the Strain-Sensing Ability of Carbon Fiber-Reinforced Cement by Ozone Treatment of the Fibers 183
- S.A. Marfil, P.J. Maiza, A.L. Bengochea, J.D. Sota, O.R. Batic:** Relationships Between  $\text{SiO}_2$ ,  $\text{Al}_2\text{O}_3$ ,  $\text{Fe}_2\text{O}_3$ ,  $\text{CaO}$ ,  $\text{K}_2\text{O}$ , and Expansion in the Determination of the Alkali Reactivity of Basaltic Rocks 189

## PAPERS

- A. Katz:** Microscopic Study of Alkali-Activated Fly Ash 197
- M.A. Climent-Llorca, E. Viqueira-Pérez, G. de Vera-Almenar, M.M. López-Atalaya:** Chloride Contamination of Concrete by Interaction with PVC Combustion Gases 209
- S. Martínez-Ramírez, F. Puertas, M.T. Blanco-Varela, G.E. Thompson, P. Almendros:** Behaviour of Repair Lime Mortars by Wet Deposition Process 221
- R. Berliner, M. Popovici, K.W. Herwig, M. Berliner, H.M. Jennings, J.J. Thomas:** Quasielastic Neutron Scattering Study of the Effect of Water-to-Cement Ratio on the Hydration Kinetics of Tricalcium Silicate 231
- S. Long, C. Liu, Y. Wu:** ESCA Study on the Early  $\text{C}_3\text{S}$  Hydration in  $\text{NaOH}$  Solution and Pure Water 245
- B. Capra, J.-P. Bournazel:** Modeling of Induced Mechanical Effects of Alkali-Aggregate Reactions 251
- P.J. Prado, B.J. Balcom, S.D. Beyea, T.W. Bremner, R.L. Armstrong, P.E. Grattan-Bellew:** Concrete Freeze/Thaw as Studied by Magnetic Resonance Imaging 261
- L. Lam, Y.L. Wong, C.S. Poon:** Effect of Fly Ash and Silica Fume on Compressive and Fracture Behaviors of Concrete 271
- D.P. Bentz, V. Waller, F. de Larrard:** Prediction of Adiabatic Temperature Rise in Conventional and High-Performance Concretes Using a 3-D Microstructural Model 285
- J. Havlicka, J. Brandstettr, I. Odler:** Possibilities of Utilizing Solid Residues from Pressurized Fluidized Bed Coal Combustion (PSBC) for the Production of Blended Cements 299
- W. Sun, J. Liu, H. Qin, Y. Zhang, Z. Jin, M. Qian:** Fatigue Performance and Equations of Roller Compacted Concrete with Fly Ash 309

## NEWS ITEMS

317

1998

Volume 28, Number 3

March

## COMMUNICATIONS

- P. Gu, B. Arsenault, J.J. Beaudoin, J.-G. Legoux, B. Harvey, J. Fournier:** Polarization Resistance of Stainless Steel-Coated Rebars 321
- D. Bordoloi, A.CH. Baruah, P. Barkakati, P.CH. Borthakur:** Influence of  $\text{ZnO}$  on Clinkerization and Properties of VSK Cement 329
- G. Kakali, S. Tsivilis, A. Tsialtas:** Hydration of Ordinary Portland Cements Made from Raw Mix Containing Transition Element Oxides 335
- J.J. Beaudoin, P. Gu, R.E. Myers:** The Fracture of C-S-H and C-S-H/CH Mixtures 341
- R. Gettu, V.O. Garcia-Álvarez, A. Aguado:** Effect of Aging on the Fracture Characteristics and Brittleness of a High-Strength Concrete 349
- L. Divet, R. Randriambololona:** Delayed Ettringite Formation: The Effect of Temperature and Basicity on the Interaction of Sulphate and C-S-H Phase 357

## PAPERS

- T. Liu, R.W. Weyers:** Modeling the Dynamic Corrosion Process in Chloride Contaminated Concrete Structures 365
- F. Guirado, S. Galí, J.S. Chinchón:** Thermal Decomposition of Hydrated Alumina Cement ( $\text{CAH}_{10}$ ) 381
- Q. Sa'id-Shawqi, C. Arya, P.R. Vassie:** Numerical Modeling of Electrochemical Chloride Removal from Concrete 391
- S.L. Sarkar, D.N. Little:** Microstructural Investigation of Severe Distress in a Crushed Concrete Base 401
- K.E. Kurtis, P.J.M. Monteiro, J.T. Brown, W. Meyer-Ilse:** Imaging of ASR Gel by Soft X-ray Microscopy 411

<b>K. Kovler:</b> Setting and Hardening of Gypsum-Portland Cement-Silica Fume Blends, Part 1: Temperature and Setting Expansion	423
<b>J. Zhang, H. Stang:</b> Applications of Stress Crack Width Relationship in Predicting the Flexural Behavior of Fibre-Reinforced Concrete	439
<b>S.D. Beyea, B.J. Balcom, T.W. Bremner, P.J. Prado, D.P. Green, R.L. Armstrong, P.E. Grattan-Bellew:</b> Magnetic Resonance Imaging and Moisture Content Profiles of Drying Concrete	453

## DISCUSSIONS

<b>J. Bensted</b>	465
<b>E.M. Gartner</b>	469

## BOOK REVIEW

471

## NEWS ITEMS

473

1998

Volume 28, Number 4

April

## COMMUNICATIONS

<b>W. Lu, D.D.L. Chung:</b> Effect of Rust on the Wettability of Steel by Water	477
<b>N.K. Katyal, S.C. Ahluwalia, R. Parkash, R.N. Sharma:</b> Rapid Estimation of Free Magnesia in OPC Clinker and 3CaO:1SiO <sub>2</sub> System by Complexometry	481
<b>X. Fu, D.D.L. Chung:</b> Combined Use of Silica Fume and Methylcellulose as Admixtures in Concrete for Increasing the Bond Strength Between Concrete and Steel Rebar	487
<b>X. Li, D.D.L. Chung:</b> Improving Silica Fume for Concrete by Surface Treatment	493

## PAPERS

<b>W.K. Yip:</b> Generic Form of Stress-Strain Equations for Concrete <i>This article was originally published in Cement and Concrete Research Vol. 28, No. 1, pp. 33–39, without its figures. This version completely supersedes the previous version, which should be disregarded. The publishers apologize for the error.</i>	499
<b>U. Schneider, S.-W. Chen:</b> The Chemomechanical Effect and the Mechanochemical Effect on High-Performance Concrete Subjected to Stress Corrosion	509
<b>K. Kovler:</b> Setting and Hardening of Gypsum-Portland Cement-Silica Fume Blends, Part 2: Early Strength, DTA, XRD, and SEM Observations	523
<b>R. Duval, E.H. Kadri:</b> Influence of Silica Fume on the Workability and the Compressive Strength of High-Performance Concretes	543
<b>M. Sun, Z. Li, Q. Mao, D. Shen:</b> Study on the Hole Conduction Phenomenon in Carbon Fibre-Reinforced Concrete	549
<b>M.A. Sanjuán, R.D. Tolédo Filho:</b> Effectiveness of Crack Control at Early Age on the Corrosion of Steel Bars in Low Modulus Sisal and Coconut Fibre-Reinforced Mortars	555
<b>E. Liebig, E. Althaus:</b> Pozzolanic Activity of Volcanic Tuff and Suevite: Effects of Calcination	567
<b>J.A. González, R. Ramírez, A. Bautista:</b> Protection of Steel Embedded in Chloride-Containing Concrete by Means of Inhibitors	577
<b>C. Ayora, S. Chinchón, A. Aguado, F. Guirado:</b> Weathering of Iron Sulfides and Concrete Alteration: Thermodynamic Model and Observation in Dams from Central Pyrenees, Spain	591
<b>Y. Erdoğan, M.S. Zeybek, A. Demirbaş:</b> Cement Mixes Containing Colemanite from Concentrator Wastes	605

## DISCUSSIONS

<b>D.J. Wilson</b>	611
<b>S. Tonus</b>	613

<b>T. Duggan</b>	<b>615</b>
<b>A.K. Suryavanshi, R.N. Swamy</b>	<b>617</b>
<b>BOOK REVIEW</b>	<b>623</b>
<b>NEWS ITEMS</b>	<b>625</b>

1998

Volume 28, Number 5

May

**COMMUNICATIONS**

<b>F. Curcio, B.A. DeAngelis:</b> Dilatant Behavior of Superplasticized Cement Pastes Containing Metakaolin	<b>629</b>
<b>G. Li, Y. Zhao, S.-S. Pang, W. Huang:</b> Experimental Study of Cement-Asphalt Emulsion Composite	<b>635</b>
<b>P.J. Tumidajski, B. Lin:</b> On the Validity of the Katz-Thompson Equation for Permeabilities in Concrete	<b>643</b>
<b>S.X. Wang, W.W. Lin, S.A. Ceng, J.Q. Zhang:</b> Corrosion Inhibition of Reinforcing Steel by Using Acrylic Latex	<b>649</b>

**PAPERS**

<b>F. Collins, J.G. Sanjayan:</b> Early Age Strength and Workability of Slag Pastes Activated by NaOH and Na <sub>2</sub> CO <sub>3</sub>	<b>655</b>
<b>N.R. Buenfeld, J.-Z. Zhang:</b> Chloride Diffusion Through Surface-Treated Mortar Specimens	<b>665</b>
<b>J. Payá, J. Monzó, M.V. Borrachero, E. Perris, F. Amahjour:</b> Thermogravimetric Methods for Determining Carbon Content in Fly Ashes	<b>675</b>
<b>M. Nehdi, S. Mindess, P.-C. Aïtcin:</b> Rheology of High-Performance Concrete: Effect of Ultrafine Particles	<b>687</b>
<b>B. Zhang:</b> Relationship Between Pore Structure and Mechanical Properties of Ordinary Concrete Under Bending Fatigue	<b>699</b>
<b>S. Miletić, M. Ilić, J. Ranogajec, R. Marinović-Nedudin, M. Djurić:</b> Portland Ash Cement Degradation in Ammonium-Sulfate Solution	<b>713</b>
<b>C.C. Yang:</b> Effect of the Transition Zone on the Elastic Moduli of Mortar	<b>727</b>
<b>A. Baskoca, M.H. Ozkul, S. Artirma:</b> Effect of Chemical Admixtures on Workability and Strength Properties of Prolonged Agitated Concrete	<b>737</b>
<b>R.V. Ranganath, B. Bhattacharjee, S. Krishnamoorthy:</b> Influence of Size Fractions of Pondered Ash on Its Pozzolanic Activity	<b>749</b>
<b>H.Y. Ghorab, E.A. Kishar, S.H. Abou Elfetouh:</b> Studies on the Stability of the Calcium Sulfoaluminate Hydrates, Part III: The Monophases	<b>763</b>

**DISCUSSIONS**

<b>S. Chatterji</b>	<b>773</b>
<b>J.-Z. Zhang, N.R. Buenfeld</b>	<b>777</b>

<b>NEWS ITEMS</b>	<b>779</b>
-------------------	------------

1998

Volume 28, Number 6

June

**COMMUNICATIONS**

<b>W. Lu, X. Fu, D.D.L. Chung:</b> A Comparative Study of the Wettability of Steel, Carbon, and Polyethylene Fibers by Water	<b>783</b>
<b>X. Fu, D.D.L. Chung:</b> Sensitivity of the Bond Strength to the Structure of the Interface Between Reinforcement and Cement, and the Variability of this Structure	<b>787</b>
<b>X. Fu, D.D.L. Chung:</b> Radio-Wave-Reflecting Concrete for Lateral Guidance in Automatic Highways	<b>795</b>

- F. Curcio, B.A. DeAngelis, S. Pagliolico:** Metakaolin as a Pozzolanic Microfiller for High-Performance Mortars 803
- H. Harmuth, H. Neuherz, S. Schrempf:** Investigation of a Magnesia Binder in the System  $\text{MgO-Mg}(\text{CH}_3\text{COO})_2\text{-H}_2\text{O}$  811

## PAPERS

- R.J. van Eijk, H.J.H. Brouwers:** Study of the Relation Between Hydrated Portland Cement Composition and Leaching Resistance 815
- C. Freidin:** Hydration and Strength Development of Binder Based on High-Calcium Oil Shale Fly Ash 829
- M.V.B.B. Gangadhara Rao, P.K. Kolay, D.N. Singh:** Thermal Characteristics of a Class F Fly Ash 841
- P. Faucon, F. Adenot, J.F. Jacquinot, J.C. Petit, R. Cabrillac, M. Jorda:** Long-Term Behaviour of Cement Pastes Used for Nuclear Waste Disposal: Review of Physico-Chemical Mechanisms of Water Degradation 847
- H. Al-Khaiat, M.N. Haque:** Effect of Initial Curing on Early Strength and Physical Properties of a Lightweight Concrete 859
- N.K. Katyal, S.C. Ahluwalia, Ram Parkash:** Solid Solution and Hydration Behaviour of Magnesium-Bearing Tricalcium Silicate Phase 867
- F.A. Rodrigues, I. Joekes:** Macro-Defect Free Cements: A New Approach 877
- C. Shi, P. Xie:** Interface Between Cement Paste and Quartz Sand in Alkali-Activated Slag Mortars 887
- J.J. Thomas, H.M. Jennings, A.J. Allen:** The Surface Area of Cement Paste as Measured by Neutron Scattering: Evidence for Two C-S-H Morphologies 897
- F.T. Olorunsogo:** Particle Size Distribution of GGBS and Bleeding Characteristics of Slag Cement Mortars 907
- C.F. Mora, A.K.H. Kwan, H.C. Chan:** Particle Size Distribution Analysis of Coarse Aggregate Using Digital Image Processing 921

## NEWS ITEMS

933

1998

Volume 28, Number 7

July

## COMMUNICATIONS

- G.K. Glass, G.M. Stevenson, N.R. Buenfeld:** Chloride-Binding Isotherms From the Diffusion Cell Test 939
- O. Francy, R. François:** Measuring Chloride Diffusion Coefficients From Non-Steady State Diffusion Tests 947
- T.-J. Kim, C.-K. Park:** Flexural and Tensile Strength Developments of Various Shape Carbon Fiber-Reinforced Lightweight Cementitious Composites 955

## PAPERS

- H. Toutanji, S. McNeil, Z. Bayasi:** Chloride Permeability and Impact Resistance of Polypropylene-Fiber-Reinforced Silica Fume Concrete 961
- C.E. de Siqueira Tango:** An Extrapolation Method for Compressive Strength Prediction of Hydraulic Cement Products 969
- J.-K. Kim, C.-S. Lee:** Prediction of Differential Drying Shrinkage in Concrete 985
- G.C. Kostogloudis, D. Kalogridis, C. Ftikos, C. Malami, B. Georgali, V. Kaloidas:** Comparative Investigation of Corrosion Resistance of Steel Reinforcement in Alinite and Portland Cement Mortars 995
- L. Bágel:** Strength and Pore Structure of Ternary Blended Cement Mortars Containing Blast Furnace Slag and Silica Fume 1011
- B. Persson:** Experimental Studies on Shrinkage of High-Performance Concrete 1023
- W.A. Tasong, J.C. Cripps, C.J. Lynsdale:** Aggregate-Cement Chemical Interactions 1037
- S. Roy, S. Chanda, S.K. Bandopadhyay, S.N. Ghosh:** Investigation of Portland Slag Cement Activated by Waterglass 1049
- G. Li, Y. Zhao, S.-S. Pang:** A Three-Layer Built-In Analytical Modeling of Concrete 1057
- W. Yeih, R. Huang:** Detection of the Corrosion Damage in Reinforced Concrete Members by Ultrasonic Testing 1071



## DISCUSSIONS

- L. Tong, M. Tang** 1085  
**S. Chatterji, N. Thaulow** 1087

## NEWS ITEMS

1089

1998

Volume 28, Number 8

August

## COMMUNICATIONS

- K. Raina, L.K. Janakiraman:** Use of Mineralizer in Black Meal Process for Improved Clinkerization and Conservation Energy 1093  
**A. Demirbas, A. Aslan:** Effects of Ground Hazelnut Shell, Wood, and Tea Waste on the Mechanical Properties of Cement 1101  
**K. Fukuda:** Redetermination of Orientation of Coherent Interface Boundaries Between  $\alpha$ - and  $\alpha'$ -H-Phases in Dicalcium Silicate 1105

## PAPERS

- D.S. Klimesch, A. Ray:** Hydrogarnet Formation During Autoclaving at 180 °C in Unstirred Metakaolin-Lime-Quartz Slurries 1109  
**N. Gowripalan, H.M. Mohamed:** Chloride-Ion Induced Corrosion of Galvanized and Ordinary Steel Reinforcement in High-Performance Concrete 1119  
**C.M. Dry, M.J.T. Corsaw:** A Time-Release Technique for Corrosion Prevention 1133  
**K. Fukuda, S. Ito, H. Taguchi:** Thermoelasticity of Belite in Portland Cement Clinker 1141  
**P.E. Grattan-Bellew, J.J. Beaudoin, V.-G. Vallée:** Effect of Aggregate Particle Size and Composition on Expansion of Mortar Bars Due to Delayed Ettringite Formation 1147  
**M.S. Morsy, A.F. Galal, S.A. Abo-El-Enin:** Effect of Temperature on Phase Composition and Microstructure of Artificial Pozzolana-Cement Pastes Containing Burnt Kaolinite Clay 1157  
**E. Gayo-Moncó, J. de Frutos:** Hydric Processes Associated with Saline Solutions, Studied by Means of Selective Infrared Thermography 1165  
**A. Bouguerra, A. Ledhem, F. de Barquin, R.M. Dheilily, M. Quéneudec:** Effect of Microstructure on the Mechanical and Thermal Properties of Lightweight Concrete Prepared from Clay, Cement, and Wood Aggregates 1179

## DISCUSSIONS

- J. Bensted** 1191  
**P.J.M. Monteiro, K. Wang, G. Sposito, M.C. dos Santos, W.P. de Andrade** 1195

## NEWS ITEMS

1197

1998

Volume 28, Number 9

September

## COMMUNICATIONS

- Q. Yu, S. Sugita, K. Sawayama, Y. Isojima:** Effect of Electron Water Curing and Electron Charging Curing on Concrete Strength 1201  
**R.K. Dhir, W.Z. Zhu, M.J. McCarthy:** Use of Portland PFA Cement in Combination with Superplasticizing Admixtures 1209  
**K. Erdoğan, P. Türker:** Effects of Fly Ash Particle Size on Strength of Portland Cement Fly Ash Mortars 1217

## PAPERS

- C. Ayora, S. Chinchón, A. Aguado, F. Guirado:** Weathering of Iron Sulfides and Concrete Alteration: Thermodynamic Model and Observation in Dams from Central Pyrenees, Spain 1223
- S. Diamond, J. Olek, Y. Wang:** The Occurrence of Two-Tone Structures in Room-Temperature Cured Cement Pastes 1237
- J.I. Escalante-García, J.H. Sharp:** Effect of Temperature on the Hydration of the Main Clinker Phases in Portland Cements: Part I, Neat Cements 1245
- J.I. Escalante-García, J.H. Sharp:** Effect of Temperature on the Hydration of the Main Clinker Phases in Portland Cements: Part II, Blended Cements 1259
- N.M. Akhras:** Detecting Freezing and Thawing Damage in Concrete Using Signal Energy 1275
- H. Cai, X. Liu:** Freeze-Thaw Durability of Concrete: Ice Formation Process in Pores 1281
- A.V. Usherov-Marshak, P.V. Krivenko, L.A. Pershina:** The Role of Solid-Phase Basicity on Heat Evolution during Hardening of Cements 1289
- T. Okamura, H. Harada, M. Daimon:** Influence of Calcium Sulfate in Belite-Rich Cement on the Change in Fluidity of Mortar with Time 1297
- D.S. Klimesch, A. Ray:** Effects of Quartz Particle Size on Hydrogarnet Formation during Autoclaving at 180 °C in the CaO-Al<sub>2</sub>O<sub>3</sub>-SiO<sub>2</sub>-H<sub>2</sub>O System 1309
- D.S. Klimesch, A. Ray:** Effects of Quartz Particle Size and Kaolin on Hydrogarnet Formation during Autoclaving 1317
- J.M. Torrents, J. Roncero, R. Gettu:** Utilization of Impedance Spectroscopy for Studying the Retarding Effect of a Superplasticizer on the Setting of Cement 1325
- A.A. Jeknavorian, E.F. Barry, F. Serafin:** Determination of Grinding Aids in Portland Cement by Pyrolysis Gas Chromatography-Mass Spectrometry 1335

## DISCUSSION

- J. Bensted** 1347

- NEWS ITEMS** 1349

1998

Volume 28, Number 10

October

## COMMUNICATIONS

- Y. Wang, D.D.L. Chung:** Effects of Sand and Silica Fume on the Vibration Damping Behavior of Cement 1353
- C.-K. Park:** Characteristics and Hydration of C<sub>12-x</sub>A<sub>7-x</sub>(CaF<sub>2</sub>) (x=0~1.5) Minerals 1357
- W.-C. Jau, D.-S. Tsay:** A Study of the Basic Engineering Properties of Slag Cement Concrete and Its Resistance to Seawater Corrosion 1363
- Y. Wang, D.D.L. Chung:** Spatial Distribution of Mechanical and Electrical Properties of Cement Mortar Prior to Loading 1373

## PAPERS

- R.H. Haddad, I.L. Al-Qadi:** Characterization of Portland Cement Concrete Using Electromagnetic Waves over the Microwave Frequencies 1379
- T.R.N. Kutty, M. Nayak:** Hydration Reactions of Nonstoichiometric Barium Orthoaluminates 1393
- S.H. Alsayed:** Influence of Superplasticizer, Plasticizer, and Silica Fume on the Drying Shrinkage of High-Strength Concrete Subjected to Hot-Dry Field Conditions 1405
- A.I.G. Yool, T.P. Lees, A. Fried:** Improvements to the Methylene Blue Dye Test for Harmful Clay in Aggregates for Concrete and Mortar 1417
- R. Dasgupta, J.C. Hay, C.R. Ortiz-Longo, K.W. White, C. Vipulanandan:** Experimental Study of the Microstructural Influence of the Strain-Softening Behavior of Cement Mortar 1429
- M.N. Haque, O. Kayali:** Properties of High-Strength Concrete Using a Fine Fly Ash 1445
- W.A. Tasong, C.J. Lynsdale, J.C. Cripps:** Aggregate-Cement Paste Interface. II: Influence of Aggregate Physical Properties 1453

- V. Kanna, R.A. Olson, H.M. Jennings:** Effect of Shrinkage and Moisture Content on the Physical Characteristics of Blended Cement Mortars 1467
- R. Hill, R. Rathbone, J.C. Hower:** Investigation of Fly Ash Carbon by Thermal Analysis and Optical Microscopy 1479
- P. Sandberg, L. Tang, A. Andersen:** Recurrent Studies of Chloride Ingress in Uncracked Marine Concrete at Various Exposure Times and Elevations 1489
- G.A. Rao:** Influence of Silica Fume Replacement of Cement on Expansion and Drying Shrinkage 1505

## DISCUSSIONS

- F.P. Glasser** 1511
- G. Kakali** 1513

- NEWS ITEMS** 1515

1998

Volume 28, Number 11

November

## COMMUNICATIONS

- C. Hosten, C. Avsar:** Grindability of Mixtures of Cement Clinker and Trass 1519

## PAPERS

- J.F. Martirena Hernández, B. Middendorf, M. Gehrke, H. Budelmann:** Use of Wastes of the Sugar Industry as Pozzolana in Lime-Pozzolana Binders: Study of the Reaction 1525
- D.A. Kendrick, J.R. Parsonage, R. Vazifdar:** Interaction of Alkali and Alkali Earth Metal Hydroxides with Microsilica 1537
- S. Miletić, M. Ilić, P. Jovanić:** Application of Energy-Dispersive Analysis to Portland and Portland Fly Ash Cement Corrosion 1545
- N. Bouzoubaâ, M.H. Zhang, A. Bilodeau, V.M. Malhotra:** Laboratory-Produced High-Volume Fly Ash Blended Cements: Physical Properties and Compressive Strength of Mortars 1555
- D.R.G. Mitchell, I. Hinczak, R.A. Day:** Interaction of Silica Fume with Calcium Hydroxide Solutions and Hydrated Cement Pastes 1571
- M.M. Ali, A.K. Mullick:** Volume Stabilisation of High MgO Cement: Effect of Curing Conditions and Fly Ash Addition 1585
- Ş. Erdoğan, Ş. Kurbetci:** Optimum Heat Treatment Cycle for Cements of Different Type and Composition 1595
- S. Gomes, M. François, C. Pellissier, O. Evrard:** Characterization and Comparative Study of Coal Combustion Residues from a Primary and Additional Flue Gas Secondary Desulfurization Process 1605
- N. De Belie, J. Monteny:** Resistance of Concrete Containing Styrol Acrylic Acid Ester Latex to Acids Occurring on Floors for Livestock Housing 1621
- P. Witakowski:** Strength Development Dynamic of Cement Paste: Testing and Control 1629
- C.R. Cheeseman, S. Asavapisit, J. Knight:** Effect of Uniaxially Pressing Ordinary Portland Cement Pastes Containing Metal Hydroxides on Porosity, Density, and Leaching 1639
- M.A. González, E.F. Irassar:** Effect of Limestone Filler on the Sulfate Resistance of Low C<sub>3</sub>A Portland Cement 1655
- P. Bouniol, A. Aspart:** Disappearance of Oxygen in Concrete under Irradiation: The Role of Peroxides in Radiolysis 1669

- NEWS ITEMS** 1683

1998

Volume 28, Number 12

December

## COMMUNICATION

- R. Ollitrault-Fichet, C. Gauthier, G. Clamen, P. Boch:** Microstructural Aspects in a Polymer-Modified Cement 1687

## PAPERS

<b>K.L. Willis, A.B. Abell, D.A. Lange:</b> Image-Based Characterization of Cement Pore Structure Using Wood's Metal Intrusion	1695
<b>M. Sun, Z. Li, Q. Mao, D. Shen:</b> Thermoelectric Percolation Phenomena in Carbon Fiber-Reinforced Concrete	1707
<b>U.A. Birnin-Yauri, F.P. Glasser:</b> Friedel's Salt, $\text{Ca}_2\text{Al}(\text{OH})_6(\text{Cl},\text{OH})\cdot 2\text{H}_2\text{O}$ : Its Solid Solutions and Their Role in Chloride Binding	1713
<b>F.P. Zhou, R.V. Balendran, A.P. Jeary:</b> Size Effect on Flexural, Splitting Tensile, and Torsional Strengths of High-Strength Concrete	1725
<b>S.J. Ford, J.D. Shane, T.O. Mason:</b> Assignment of Features in Impedance Spectra of the Cement-Paste/Steel System	1737
<b>S. Bagosi, L.J. Csetényi:</b> Caesium Immobilisation in Hydrated Calcium-Silicate-Aluminate Systems	1753
<b>J.-K. Kim, Y.-H. Moon, S.-H. Eo:</b> Compressive Strength Development of Concrete with Different Curing Time and Temperature	1761
<b>C.M. Hansson, L. Mammoliti, B.B. Hope:</b> Corrosion Inhibitors in Concrete-Part I: The Principles	1775
<b>N. Bouzoubaâ, M.H. Zhang, V.M. Malhotra:</b> Superplasticized Portland Cement: Production and Compressive Strength of Mortars and Concrete	1783
<b>I.-C. Yeh:</b> Modeling of Strength of High-Performance Concrete Using Artificial Neural Networks	1797
<b>D.J. Hannant:</b> Durability of Polypropylene Fibers in Portland Cement-Based Composites: Eighteen Years of Data	1809
<b>K. Tan, X. Pu:</b> Strengthening Effects of Finely Ground Fly Ash, Granulated Blast Furnace Slag, and Their Combination	1819

## TECHNICAL NOTE

<b>D. McDonald:</b> Delayed Ettringite Formation and Heat Curing-Implications of the Work of Kelham	1827
---	------

## DISCUSSIONS

<b>D.E. Simon</b>	1831
<b>R. Berliner, C. Ball, P.B. West</b>	1833
<b>S. Chatterji</b>	1837
<b>L. Divet, R. Randriambololona</b>	1839
<b>J. Bensted, J. Munn</b>	1841
<b>L. Divet, R. Randriambololona</b>	1843

<b>NEWS ITEMS</b>	1845
<b>INDEX TO VOLUME 28</b>	1849
<b>AUTHOR INDEX</b>	1861
<b>KEYWORD INDEX</b>	1865

1999

Volume 29, Number 1

January

## EDITORIAL

<b>D.M. Roy:</b> Editorial	1
----------------------------	---

## PAPERS

<b>V. Lilkov, E. Dimitrova, S. Gaidardzhiev:</b> Microscopic and laser granulometric analysis of hydrating cement suspensions	3
<b>I. Teoreanu, G. Guslicov:</b> Mechanisms and effects of additives from the dihydroxy-compound class on Portland cement grinding	9
<b>R. Yang, C.D. Lawrence, C.J. Lynsdale, J.H. Sharp:</b> Delayed ettringite formation in heat-cured Portland cement mortars	17

<b>P.-V. Vlachou, J.-M. Piau:</b> Physicochemical study of the hydration process of an oil well cement slurry before setting	27
<b>Q. Yu, K. Sawayama, S. Sugita, M. Shoya, Y. Isojima:</b> The reaction between rice husk ash and $\text{Ca}(\text{OH})_2$ solution and the nature of its product	37
<b>Q. Yang:</b> Inner relative humidity and degree of saturation in high-performance concrete stored in water or salt solution for 2 years	45
<b>I.W. Hamilton, N.M. Sammes:</b> Encapsulation of steel foundry bag house dusts in cement mortar	55
<b>G. Renaudin, M. Francois, O. Evrard:</b> Order and disorder in the lamellar hydrated tetracalcium monocarboaluminate compound	63
<b>S.P. Jiang, B.-G. Kim, P.-C. Aitcin:</b> Importance of adequate soluble alkali content to ensure cement/superplasticizer compatibility	71
<b>V.G. Papadakis:</b> Experimental investigation and theoretical modeling of silica fume activity in concrete	79
<b>J. Monzó, J. Payá, M.V. Borrachero, E. Peris-Mora:</b> Mechanical behavior of mortars containing sewage sludge ash (SSA) and Portland cements with different tricalcium aluminate content	87
<b>A. Saccani, V. Magnaghi:</b> Durability of epoxy resin-based materials for the repair of damaged cementitious composites	95
<b>J.-Y. Park, B. Batchelor:</b> Prediction of chemical speciation in stabilized/solidified wastes using a general chemical equilibrium model II: Doped waste contaminants in cement porewaters	99
<b>S. Martinez-Ramirez:</b> Influence of $\text{SO}_2$ deposition on cement mortar hydration	107
<b>T. Bakharev, J.G. Sanjayan, Y.-B. Cheng:</b> Alkali activation of Australian slag cements	113
<b>G.K.D. Pushpalal, T. Kobayashi, T. Kawano, N. Maeda:</b> The processing, properties, and applications of calcium aluminate-phenol resin composite	121
<b>K.O. Kjellsen, E.H. Atlasi:</b> Pore structure of cement silica fume systems: Presence of hollow-shell pores	133
<b>G. De Schutter:</b> Hydration and temperature development of concrete made with blast-furnace slag cement	143
<b>NEWS ITEMS</b>	151
<b>OBITUARY</b>	155

1999

Volume 29, Number 2

February

*SPECIAL ISSUE*

**Papers Presented at the Materials Research Society Symposium on Advances in  
Materials for Cementitious Composites**

*Boston, Massachusetts, December 1–3, 1997*

**EDITORIAL**

<b>M. Silsbee:</b> Symposium on "Advances in Materials for Cementitious Composites," The Materials Research Society, December 1–3, 1997	157
--	-----

**PAPERS**

<b>S. Song, H.M. Jennings:</b> Pore solution chemistry of alkali-activated ground granulated blast-furnace slag	159
<b>J. Péra, J. Ambroise, M. Chabannet:</b> Properties of blast-furnace slags containing high amounts of manganese	171
<b>M. Andac, F.P. Glasser:</b> Long-term leaching mechanisms of Portland cement-stabilized municipal solid waste flyash in carbonated water	179
<b>A. Gadayev, B. Kodess:</b> By-product materials in cement clinker manufacturing	187
<b>S.B. Park, E.S. Yoon, B.I. Lee:</b> Effects of processing and materials variations on mechanical properties of lightweight cement composites	193



<b>P.J. Kim, H.C. Wu, Z. Lin, V.C. Li, B. deLhoneux, S.A.S. Akers:</b> Micromechanics-based durability study of cellulose cement in flexure	201
<b>E. Salmon, M. Ausloos, N. Vandewalle:</b> Water invasion, freezing, and thawing in cementitious materials	209
<b>S.-S. Hong, G.-G. Lim, B.-K. Lee, B.-J. Lee, J.-S. Rho:</b> Mechanical strength enhancement of lower hydraulicity cementitious solid wastes using anhydrite and pozzolanic materials	215
<b>G.-G. Lim, S.-S. Hong, D.-S. Kim, B.-J. Lee, J.-S. Rho:</b> Slump loss control of cement paste by adding polycarboxylic type slump-releasing dispersant	223
<b>C.Y. Rha, C.E. Kim, C.S. Lee, K.I. Kim, S.K. Lee:</b> Preparation and characterization of absorbent polymer-cement composites	231
<b>B. Mu, Z. Li, S.N.C. Chui, J. Peng:</b> Cementitious composite manufactured by extrusion technique	237
<b>D. Sohn, D.L. Johnson:</b> Microwave curing effects on the 28-day strength of cementitious materials	241
<b>D.M. Roy:</b> Alkali-activated cements: Opportunities and challenges	249
<b>S.D. Chen, C.H. Hwang, K.C. Hsu:</b> The effects of sulphonated phenolic resins on the properties of concrete	255
<b>S. Rols, J. Ambroise, J. Péra:</b> Effects of different viscosity agents on the properties of self-leveling concrete	261
<b>A. Schwartzentruber, J.-P. Bournazel, J.-N. Gacel:</b> Hydraulic concrete as a deep-drawing tool of sheet steel	267
<b>K.K. Aligizaki, P.D. Cady:</b> Air content and size distribution of air voids in hardened cement pastes using the section-analysis method	273
<b>M.R. de Rooij, J.M.J.M. Bijen, G. Frens:</b> Active thin sections to study syneresis	281
<b>R.A. Livingston, M. Manghnani, M. Prasad:</b> Characterization of Portland cement concrete microstructure using the scanning acoustic microscope	287
<b>NEWS ITEMS</b>	293

1999

Volume 29, Number 3

March

## PAPERS

<b>A. Hauser, U. Eggenberger, T. Mumenthaler:</b> Fly ash from cellulose industry as secondary raw material in autoclaved aerated concrete	297
<b>J.O. Odigüre:</b> Grindability of cement clinker from raw mix containing metallic particles	303
<b>M. Singh, M. Garg:</b> Cementitious binder from fly ash and other industrial wastes	309
<b>L. Li, A.A. Sagüés, N. Poor:</b> In situ leaching investigation of pH and nitrite concentration in concrete pore solution	315
<b>M.M. Reda, N.G. Shrive, J.E. Gillott:</b> Microstructural investigation of innovative UHPC	323
<b>H.S. Abdelgader:</b> How to design concrete produced by a two-stage concreting method	331
<b>A. Bouguerra, H. Sallée, F. de Barquin, R.M. Dheilly, M. Quéneudec:</b> Isothermal moisture properties of wood-cementitious composites	339
<b>P. Yan, W. Yang, X. Qin, Y. You:</b> Microstructure and properties of the binder of fly ash-fluorogypsum-Portland Cement	349
<b>N.K. Katyal, R. Parkash, S.C. Ahluwalia, G. Samuel:</b> Influence of titania on the formation of tricalcium silicate	355
<b>J.-Y. Park, B. Batchelor:</b> Prediction of chemical speciation in stabilized/solidified wastes using a general chemical equilibrium model: Part I. Chemical representation of cementitious binders	361
<b>M. Mouret, A. Bascoul, G. Escadeillas:</b> Microstructural features of concrete in relation to initial temperature-SEM and ESEM characterization	369
<b>W.J. McCarter, G. Starrs, T.M. Chrisp:</b> Immittance spectra for Portland cement/fly ash-based binders during early hydration	377
<b>Q. Yang, X. Wu:</b> Factors influencing properties of phosphate cement-based binder for rapid repair of concrete	389
<b>S. Tandon, K.T. Faber:</b> Effects of loading rate on the fracture of cementitious materials	397
<b>J.-H. Kim, R.E. Robertson, A.E. Naaman:</b> Structure and properties of poly(vinyl alcohol)-modified mortar and concrete	407

## COMMUNICATIONS

- C. Andrade, M. Castellote, C. Alonso, C. González:** Relation between colourimetric chloride penetration depth and charge passed in migration tests of the type of standard ASTM C1202-91 417
- H. Yan, W. Sun, H. Chen:** The effect of silica fume and steel fiber on the dynamic mechanical performance of high-strength concrete 423
- Y. Wang, D.D.L. Chung:** Effect of embedded steel on the compressive damage behavior of cement mortar 427
- B. Singh, A.J. Majumdar, K. Quillin:** Properties of BRECEM: Ten-year results 429
- Z.-Q. Shi, D.D.L. Chung:** Carbon fiber-reinforced concrete for traffic monitoring and weighing in motion 435
- M. Poznič, R. Gabrovšek, M. Novič:** Ion chromatography determination of chloride and sulphate in cement 441
- S. Wen, D.D.L. Chung:** Piezoresistivity in continuous carbon fiber cement-matrix composite 445
- Y. Xu, D.D.L. Chung:** Improving the workability and strength of silica fume concrete by using silane-treated silica fume 451
- F.G. Collins, J.G. Sanjayan:** Workability and mechanical properties of alkali activated slag concrete 455
- F. Collins, J.G. Sanjayan:** Effects of ultra-fine materials on workability and strength of concrete containing alkali-activated slag as the binder 459

## NEWS ITEMS

463

1999

Volume 29, Number 4

April

## PAPERS

- Y. Fan, S. Yin, Z. Wen, J. Zhong:** Activation of fly ash and its effects on cement properties 467
- P. Sandberg:** Studies of chloride binding in concrete exposed in a marine environment 473
- S. Bagosi, L.J. Csetenyi:** Immobilization of caesium-loaded ion exchange resins in zeolite-cement blends 479
- M.D.A. Thomas, P.B. Bamforth:** Modelling chloride diffusion in concrete: Effect of fly ash and slag 487
- H.A. Toutanji, Z. Bayasi:** Effect of curing procedures on properties of silica fume concrete 497
- K. Fukuda, H. Taguchi:** Hydration of  $\alpha$ -L- and  $\beta$ -dicalcium silicates with identical concentration of phosphorus oxide 503
- P. Navi, C. Pignat:** Three-dimensional characterization of the pore structure of a simulated cement paste 507
- S.R. Hillier, C.M. Sangha, B.A. Plunkett, P.J. Walden:** Long-term leaching of toxic trace metals from Portland cement concrete 515
- G. Calloni, P. D'Antona, N. Moroni:** A new rheological approach helps formulation of gas impermeable cement slurries 523
- F.A. Rodrigues, P.J.M. Monteiro, G. Sposito:** The alkali-silica reaction: The surface charge density of silica and its effect on expansive pressure 527
- M. Tokyay:** Effect of chemical composition of clinker on grinding energy requirement 531
- F. Aköz, F. Türker, S. Koral, N. Yüzer:** Effects of raised temperature of sulfate solutions on the sulfate resistance of mortars with and without silica fume 537
- D. Stephan, H. Maleki, D. Knöfel, B. Eber, R. Härdti:** Influence, of Cr, Ni, and Zn on the properties of pure clinker phases: Part I.  $C_3S$  545
- I. Tanaka, N. Suzuki, Y. Ono, M. Koishi:** A comparison of the fluidity of spherical cement with that of broad cement and a study of the properties of fresh concrete using spherical cement 553
- A. Castel, R. François, G. Arliguie:** Effect of loading on carbonation penetration in reinforced concrete elements 561
- O.M. Jensen, P.F. Hansen:** Influence of temperature on autogenous deformation and relative humidity change in hardening cement paste 567
- A. Loukili, A. Khelidj, P. Richard:** Hydration kinetics, change of relative humidity, and autogenous shrinkage of ultra-high-strength concrete 577
- K.O. Ampadu, K. Torii, M. Kawamura:** Beneficial effect of fly ash on chloride diffusivity of hardened cement paste 585
- T. Sebök, O. Stráenél:** Relationships between the properties of ligninsulphonates and parameters of modified samples with cement binders. Part II. Study of relationships between molar parameters of ligninsulphonates and characteristics of the samples tested 591

## COMMUNICATIONS

<b>S. Chatterji:</b> Evidence of variable diffusivity of ions in saturated cementitious materials	595
<b>İ.A. Altun:</b> Influence of heating rate on the burning of cement clinker	599
<b>M.S. Morsy:</b> Effect of temperature on electrical conductivity of blended cement pastes	603
<b>F. Collins, J.G. Sanjayan:</b> Strength and shrinkage properties of alkali-activated slag concrete containing porous coarse aggregate	607
<b>K. Kohno, T. Okamoto, Y. Isikawa, T. Sibata, H. Mori:</b> Effects of artificial lightweight aggregate on autogenous shrinkage of concrete	611
<b>D.P. Bentz, C.J. Haecker:</b> An argument for using coarse cements in high-performance concretes	615
<b>H.B. Basri, M.A. Mannan, M.F.M. Zain:</b> Concrete using waste oil palm shells as aggregate	619
<b>J.I. Escalante, G. Mendoza, H. Mancha, J. López, G. Vargas:</b> Pozzolanic properties of a geothermal silica waste material	623
<b>S. Chatterji:</b> Aspects of the freezing process in a porous material-water system: Part 1. Freezing and the properties of water and ice	627
<b>L. Jiang, Y. Guan:</b> Pore structure and its effect on strength of high-volume fly ash paste	631
<b>NEWS ITEMS</b>	635

1999

Volume 29, Number 5

May

<b>H. Biricik, F. Aköz, İ. Berktaş, A.N. Tuglar:</b> Study of pozzolanic properties of wheat straw ash	637
<b>G.V. Strand, A.B. Tveit, N.R. Gjerdet:</b> Marginal ridge strength of tunnel-prepared teeth restored with various adhesive filling materials	645
<b>D. Stephan, H. Maleki, D. Knöfel, B. Eber, R. Härdtl:</b> Influence of Cr, Ni, and Zn on the properties of pure clinker phases: Part II. C <sub>3</sub> A and C <sub>4</sub> AF	651
<b>F. Collins, J.G. Sanjayan:</b> Strength and shrinkage properties of alkali-activated slag concrete placed into a large column	659
<b>R.K. Dhir, P.C. Hewlett, T.D. Dyer:</b> Chemical profiles of cement pastes exposed to a chloride solution spray	667
<b>S.R. Kaniraj, V.G. Havanagi:</b> Compressive strength of cement stabilized fly ash-soil mixtures	673
<b>A.R. Landa-Cánovas, S. Hansen:</b> Transmission electron microscopic study of ferrite in sulfate-resisting Portland cement clinker	679
<b>W. Prince, R. Pérami, M. Espagne:</b> Mechanisms involved in the accelerated test of chloride permeability	687
<b>C.M. De O. Madivate:</b> Theoretical energy requirement for burning clinker	695
<b>A.M. Grabiec:</b> Contribution to the knowledge of melamine superplasticizer effect on some characteristics of concrete after long periods of hardening	699
<b>J.-K. Kim, Y.-Y. Kim:</b> Fatigue crack growth of high-strength concrete in wedge-splitting test	705
<b>F. Škvára, V. Ševčík:</b> Influence of high temperature on gypsum-free Portland cement materials	713
<b>M. Benzaazoua, J. Ouellet, S. Servant, P. Newman, R. Verburg:</b> Cementitious backfill with high sulfur content: Physical, chemical, and mineralogical characterization	719
<b>J. García Iglesias, M. Menéndez Álvarez, J. Egocheaga Rodríguez:</b> Influence of gypsum's mineralogical characteristics on its grinding behaviour applied to cement fabrication	727
<b>I. Odler, J. Colán-Subauste:</b> Investigations on cement expansion associated with ettringite formation	731
<b>P.R. Blankenhorn, M.R. Silsbee, B.D. Blankenhorn, M. DiCola, K. Kessler:</b> Temperature and moisture effects on selected properties of wood fiber-cement composites	737
<b>K. Erdogdu, M. Tokyay, P. Türker:</b> Comparison of intergrinding and separate grinding for the production of natural pozzolan and GBFS-incorporated blended cements	743
<b>R.S. Santos, F.A. Rodrigues, N. Segre, I. Jockes:</b> Macro-defect free cements: Influence of poly(vinyl alcohol), cement type, and silica fume	747
<b>M. Jolin, D. Beaupré, S. Mindess:</b> Tests to characterise properties of fresh dry-mix shotcrete	753

## COMMUNICATIONS

<b>T. Sebök, M. Vondruška, S. Vaňková:</b> Gypsum-free cements as binders of suspensions for injections	761
<b>R.S. Iyer, B. Stanmore:</b> The effect of water absorption and the role of fines on the yield stress of dense fly ash slurries	765

- M. Sun, Z. Li, Q. Mao, D. Shen:** A study on thermal self-monitoring of carbon fiber reinforced concrete 769  
**Y. Xu, D.D.L. Chung:** Carbon fiber reinforced cement improved by using silane-treated carbon fibers 773  
**N. Menek, Z. Heren:** Analysis of triethanolamine in white cement pastes by voltammetric methods 777  
**S. Chatterji:** Aspects of freezing process in porous material-water system: Part 2. Freezing and properties of frozen porous materials 781  
**M.F. Mohd Zain, K.M. Yusof, Y. Matsufuji:** The influence of medium temperature environments on the water permeability of high performance mortar 785

## NOTE

- W.G. Hime, B. Mather:** "Sulfate attack," or is it? 789

## DISCUSSIONS

- G.M. Idorn:** A discussion of the paper "Effect of aggregate particle size and composition on expansion of mortar bars due to delayed ettringite formation" by P.E. Grattan-Bellew, J.J. Beaudoin, and V.-G. Vallée 793  
**P.E. Grattan-Bellew, J.J. Beaudoin, V.-G. Vallée:** Reply to discussion of the paper "Effect of aggregate particle size and composition on expansion of mortar bars due to delayed ettringite formation" 795  
**J. Bensted:** A discussion of the paper "Determination of grinding aids in Portland cement by pyrolysis-gas chromatography-mass spectrometry" by A.A. Jeknavorian, E.F. Barry, and F. Serafin 797  
**A.A. Jeknavorian:** Reply to discussion of the paper "Determination of grinding aids in Portland cement by pyrolysis-gas chromatography-mass spectrometry" 799

## NEWS ITEMS

801

1999

Volume 29, Number 6

June

## PAPERS

- X.F. Gao, Y. Lo, C.M. Tam, C.Y. Chung:** Analysis of the infrared spectrum and microstructure of hardened cement paste 805  
**M. Sari, E. Prat, J.-F. Labastire:** High strength self-compacting concrete: Original solutions associating organic and inorganic admixtures 813  
**J. Zelić, R. Krstulović, E. Tkalčec, P. Krolo:** Durability of the hydrated limestone-silica fume Portland cement mortars under sulphate attack 819  
**A. Boddy, E. Bentz, M.D.A. Thomas, R.D. Hooton:** An overview and sensitivity study of a multimechanistic chloride transport model 827  
**G. Li, Y. Zhao, S.-S. Pang:** Four-phase sphere modeling of effective bulk modulus of concrete 839  
**R. Morlat, P. Godard, Y. Bomal, G. Orange:** Dynamic mechanical thermoanalysis of latexes in cement paste 847  
**B. Trunk, G. Schober, A.K. Helbling, F.H. Wittmann:** Fracture mechanics parameters of autoclaved aerated concrete 855  
**F.P. Glasser, A. Kindness, S.A. Stronach:** Stability and solubility relationships in AFm phases: Part I. Chloride, sulfate and hydroxide 861  
**E.-E. Toumbakari, D. Van Gemert, T.P. Tassios, N. Tenoutasse:** Effect of mixing procedure on injectability of cementitious grouts 867  
**F.R. Foulkes, P. McGrath:** A rapid cyclic voltammetric method for studying cement factors affecting the corrosion of reinforced concrete 873  
**C.R. Cheeseman, S. Asavapisit:** Effect of calcium chloride on the hydration and leaching of lead-retarded cement 885  
**M.A. Climent, E. Viqueira, G. de Vera, M.M. López-Atalaya:** Analysis of acid-soluble chloride in cement, mortar, and concrete by potentiometric titration without filtration steps 893  
**A.A. Jeknavorian, E.F. Barry:** Determination of durability-enhancing admixtures in concrete by thermal desorption and pyrolysis gas chromatography-mass spectrometry 899  
**J. Schulze:** Influence of water-cement ratio and cement content on the properties of polymer-modified mortars 909  
**M.G. Alexander, B.J. Magee:** Durability performance of concrete containing condensed silica fume 917

<b>M.Z. Fan, P.W. Bonfield, J.M. Dinwoodie, M.C. Breese:</b> Dimensional instability of cement-bonded particleboard: Mechanisms of deformation of CBPB	923
<b>R.A. Cook, K.C. Hover:</b> Mercury porosimetry of hardened cement pastes	933
<b>M.I. Sánchez de Rojas, J. Rivera, M. Frías:</b> Influence of the microsilica state on pozzolanic reaction rate	945

## COMMUNICATIONS

<b>X. Pu:</b> Investigation on pozzolanic effect of mineral additives in cement and concrete by specific strength index	951
<b>J.-T. Ding, P.-Y. Yan, S.-L. Liu, J.-Q. Zhu:</b> Extreme vertices design of concrete with combined mineral admixtures	957
<b>S. Wen, D.D.L. Chung:</b> Carbon fiber-reinforced cement as a thermistor	961

## DISCUSSIONS

<b>J. Bensted:</b> A discussion of the paper "Use of cactus in mortars and concrete" by S. Chandra, L. Eklund, and R.R. Villarreal	967
<b>S. Chandra, L. Eklund, R.R. Villarreal:</b> Reply to discussion of the paper "Use of cactus in mortars and concrete"	969

<b>NEWS ITEMS</b>	971
-------------------	-----

1999	Volume 29, Number 7	July
------	---------------------	------

## PAPERS

<b>W.A. Tasong, S. Wild, R.J.D. Tilley:</b> Mechanisms by which ground granulated blastfurnace slag prevents sulphate attack of lime-stabilised kaolinite	975
<b>A. Demirbaş, A. Aslan:</b> Evaluation of lignite combustion residues as cement additives	983
<b>M.C. Nataraja, N. Dhang, A.P. Gupta:</b> Statistical variations in impact resistance of steel fiber-reinforced concrete subjected to drop weight test	989
<b>A. Palomo, M.T. Blanco-Varela, M.L. Granizo, F. Puertas, T. Vazquez, M.W. Grutzeck:</b> Chemical stability of cementitious materials based on metakaolin	997
<b>H. Motzet, H. Pöllmann:</b> Synthesis and characterisation of sulfite-containing AFm phases in the system $\text{CaO-Al}_2\text{O}_3\text{-SO}_2\text{-H}_2\text{O}$	1005
<b>S. Hu, Y. Li:</b> Research on the hydration, hardening mechanism, and microstructure of high performance expansive concrete	1013
<b>W.A. Tasong, C.J. Lynsdale, J.C. Cripps:</b> Aggregate-cement paste interface: Part I. Influence of aggregate geochemistry	1019
<b>G. Chanvillard:</b> Modeling the pullout of wire-drawn steel fibers	1027
<b>F. Schmidt-Döhl, F.S. Rostásy:</b> A model for the calculation of combined chemical reactions and transport processes and its application to the corrosion of mineral-building materials: Part I. Simulation model	1039
<b>F. Schmidt-Döhl, F.S. Rostásy:</b> A model for the calculation of combined chemical reactions and transport processes and its application to the corrosion of mineral-building materials: Part II. Experimental verification	1047
<b>X.H. Guo, F. Tin-Loi, H. Li:</b> Determination of quasibrittle fracture law for cohesive crack models	1055
<b>J.I. Alvarez, A. Martín, P.J. García Casado, I. Navarro, A. Zornoza:</b> Methodology and validation of a hot hydrochloric acid attack for the characterization of ancient mortars	1061
<b>S. Austin, P. Robins, Y. Pan:</b> Shear bond testing of concrete repairs	1067
<b>M.A. Pindado, A. Aguado, A. Josa:</b> Fatigue behavior of polymer-modified porous concretes	1077
<b>L. Zheng, J.J. Beaudoin:</b> An assessment of the relative permeability of cement systems using AC impedance techniques	1085
<b>Md.M. Rahman, S. Nagasaki, S. Tanaka:</b> A model for dissolution of $\text{CaO-SiO}_2\text{-H}_2\text{O}$ gel at $\text{Ca/Si} > 1$	1091
<b>S.M. Clark, G.R. Morrison, W.D. Shi:</b> The use of scanning transmission X-ray microscopy for the real-time study of cement hydration	1099



## COMMUNICATIONS

<b>X. Wu, H. Zhu, X. Hou, H. Li:</b> Study on steel slag and fly ash composite Portland cement	1103
<b>Y. Xu, D.D.L. Chung:</b> Effect of carbon fibers on the vibration-reduction ability of cement	1107
<b>M. Shi, Z. Chen, J. Sun:</b> Determination of chloride diffusivity in concrete by AC impedance spectroscopy	1111
<b>Y. Xu, D.D.L. Chung:</b> Increasing the specific heat of cement paste by admixture surface treatments	1117
<b>BOOK REVIEWS</b>	1123
<b>NEWS ITEMS</b>	1125

1999

Volume 29, Number 8

August

## SPECIAL ISSUE

Papers Presented at the Engineering Foundation International Conference on  
Advances in Cement and Concrete*Banff, Alberta, Canada, 5–10 July 1998*

## EDITORIAL

<b>R.D. Hooton, M.D.A. Thomas, S.P. Shah:</b> Symposium on "Advances in Cement and Concrete," The Engineering Foundation, July 5–10, 1998	1129
--	------

## PAPERS

<b>I.G. Richardson:</b> The nature of C-S-H in hardened cements	1131
<b>G.W. Scherer:</b> Structure and properties of gels	1149
<b>S. Hanehara, K. Yamada:</b> Interaction between cement and chemical admixture from the point of cement hydration, absorption behaviour of admixture, and paste rheology	1159
<b>P.W. Brown:</b> Hydration behavior of calcium phosphates is analogous to hydration behavior of calcium silicates	1167
<b>H.F.W. Taylor:</b> Distribution of sulfate between phases in Portland cement clinkers	1173
<b>S. Diamond:</b> Aspects of concrete porosity revisited	1181
<b>J.G.S. van Jaarsveld, J.S.J. van Deventer:</b> The effect of metal contaminants on the formation and properties of waste-based geopolymers	1189
<b>P. Stroeve, M. Stroeve:</b> Assessment of packing characteristics by computer simulation	1201
<b>M.D.A. Thomas, M.H. Shehata, S.G. Shashiprakash, D.S. Hopkins, K. Cail:</b> Use of ternary cementitious systems containing silica fume and fly ash in concrete	1207
<b>K.L. Scrivener, J.-L. Cabiron, R. Letourneux:</b> High-performance concretes from calcium aluminate cements	1215
<b>V. Baroghel-Bouny, M. Mainguy, T. Lassabatere, O. Coussy:</b> Characterization and identification of equilibrium and transfer moisture properties for ordinary and high-performance cementitious materials	1225
<b>P.F. McGrath, R.D. Hooton:</b> Re-evaluation of the AASHTO T259 90-day salt ponding test	1239
<b>C. Andrade, J. Sarria, C. Alonso:</b> Relative humidity in the interior of concrete exposed to natural and artificial weathering	1249
<b>B.F. Johansson:</b> Diffusion of a mixture of cations and anions dissolved in water	1261
<b>S. Diamond:</b> Unique response of $\text{LiNO}_3$ as an alkali silica reaction-preventive admixture	1271
<b>B. Mather:</b> How to make concrete that will not suffer deleterious alkali-silica reaction	1277
<b>D.S. Lane, C. Ozyildirim:</b> Preventive measures for alkali-silica reactions (binary and ternary systems)	1281
<b>G. Gudmundsson, H. Olafsson:</b> Alkali-silica reactions and silica fume: 20 years of experience in Iceland	1289
<b>M. Stroeve, P. Stroeve:</b> SPACE system for simulation of aggregated matter application to cement hydration	1299

<b>P. Arjunan, M.R. Silsbee, D.M. Roy:</b> Sulfoaluminate-belite cement from low-calcium fly ash and sulfur-rich and other industrial by-products	<b>1305</b>
<b>A. Fernández-Jiménez, J.G. Palomo, F. Puertas:</b> Alkali-activated slag mortars: Mechanical strength behaviour	<b>1313</b>
<b>A. Palomo, M.W. Grutzeck, M.T. Blanco:</b> Alkali-activated fly ashes: A cement for the future	<b>1323</b>
<b>S.A. Hartshorn, J.H. Sharp, R.N. Swamy:</b> Thaumassite formation in Portland-limestone cement pastes	<b>1331</b>
<b>E. Samson, J. Marchand, J.J. Beaudoin:</b> Describing ion diffusion mechanisms in cement-based materials using the homogenization technique	<b>1341</b>
<b>G.W. Scherer:</b> Crystallization in pores	<b>1347</b>

#### POSTER SESSION ABSTRACT

<b>T. Hartmann, P. Paviet-Hartmann, J.B. Rubin, K.E. Sickafus:</b> Supercritical CO <sub>2</sub> carbonation of cemented radioactive waste-forms: Influence on leachability and structure	<b>1359</b>
---	-------------

<b>NEWS ITEMS</b>	<b>1361</b>
-------------------	-------------

1999

Volume 29, Number 9

September

#### PAPERS

<b>D. Deng, C. Zhang:</b> The formation mechanism of the hydrate phases in magnesium oxychloride cement	<b>1365</b>
<b>A. Monshi, M.K. Asgarani:</b> Producing Portland cement from iron and steel slags and limestone	<b>1373</b>
<b>K. Hong, R.D. Hooton:</b> Effects of cyclic chloride exposure on penetration of concrete cover	<b>1379</b>
<b>M. Cheriaf, J.C. Rocha, J. Péra:</b> Pozzolanic properties of pulverized coal combustion bottom ash	<b>1387</b>
<b>C. Zhang, A. Wang, M. Tang, B. Wu, N. Zhang:</b> Influence of aggregate size and aggregate size grading on ASR expansion	<b>1393</b>
<b>Y.-S. Park, J.-K. Suh, J.-H. Lee, Y.-S. Shin:</b> Strength deterioration of high strength concrete in sulfate environment	<b>1397</b>
<b>A.K.H. Kwan, C.F. Mora, H.C. Chan:</b> Particle shape analysis of coarse aggregate using digital image processing	<b>1403</b>
<b>M.T. Liang, K.L. Wang, C.H. Liang:</b> Service life prediction of reinforced concrete structures	<b>1411</b>
<b>M.M. Smadi, R.H. Haddad, A.M. Akour:</b> Potential use of phosphogypsum in concrete	<b>1419</b>
<b>M.F.M. Zain, M. Safiuddin, K.M. Yusof:</b> A study on the properties of freshly mixed high performance concrete	<b>1427</b>
<b>I. Klich, B. Batchelor, L.P. Wilding, L.R. Drees:</b> Mineralogical alterations that affect the durability and metals containment of aged solidified and stabilized wastes	<b>1433</b>
<b>S. Mansoutre, P. Colombet, H. Van Damme:</b> Water retention and granular rheological behavior of fresh C <sub>3</sub> S paste as a function of concentration	<b>1441</b>
<b>G. Li, Y. Zhao, S.-S. Pang, Y. Li:</b> Effective Young's modulus estimation of concrete	<b>1455</b>
<b>L. Tang:</b> Concentration dependence of diffusion and migration of chloride ions: Part 1. Theoretical considerations	<b>1463</b>
<b>L. Tang:</b> Concentration dependence of diffusion and migration of chloride ions: Part 2. Experimental evaluations	<b>1469</b>
<b>P.S. Mangat, M.C. Limbachiya:</b> Effect of initial curing on chloride diffusion in concrete repair materials	<b>1475</b>
<b>W. Sha, E.A. O'Neill, Z. Guo:</b> Differential scanning calorimetry study of ordinary Portland cement	<b>1487</b>
<b>D.A. Williams, A.W. Saak, H.M. Jennings:</b> The influence of mixing on the rheology of fresh cement paste	<b>1491</b>
<b>O.M. Jensen, P.F. Hansen, A.M. Coats, F.P. Glasser:</b> Chloride ingress in cement paste and mortar	<b>1497</b>
<b>O.M. Jensen, P.F. Hansen, E.E. Lachowski, F.P. Glasser:</b> Clinker mineral hydration at reduced relative humidities	<b>1505</b>
<b>C. Evju, E. Hansen, S. Hansen:</b> Simulating the hydration of cementitious phases with an oscillating rate of reaction	<b>1513</b>

#### COMMUNICATIONS

<b>W. Sun, Y.M. Zhang, H.D. Yan, R. Mu:</b> Damage and damage resistance of high strength concrete under the action of load and freeze-thaw cycles	<b>1519</b>
<b>R.L. Sharma, S.P. Pandey:</b> Influence of mineral additives on the hydration characteristics of ordinary Portland cement	<b>1525</b>

<b>NEWS ITEMS</b>	<b>1531</b>
-------------------	-------------

1999

Volume 29, Number 10

October

## PAPERS

- E.E. Hekal, E.A. Kishar:** Effect of sodium salt of naphthalene-formaldehyde polycondensate on ettringite formation 1535
- K.K. Asthana, L.K. Aggarwal, R. Lakhani:** A novel interpenetrating polymer network coating for the protection of steel reinforcement in concrete 1541
- S. Li, J. Hu, B. Liu, G. Zhang, W. Cao, Q. Wang, N. Zhang:** Fundamental study on aluminophosphate cement 1549
- T.D. Marcotte, C.M. Hansson, B.B. Hope:** The effect of the electrochemical chloride extraction treatment on steel-reinforced mortar Part I: Electrochemical measurements 1555
- T.D. Marcotte, C.M. Hansson, B.B. Hope:** The effect of the electrochemical chloride extraction treatment on steel-reinforced mortar Part II: Microstructural characterization 1561
- A. Hauser, U. Eggenberger, T. Peters:** Origin and characterisation of fly ashes from cellulose industries containing high proportions of free lime and anhydrite 1569
- K. Johansson, C. Larsson, O.N. Antzutkin, W. Forsling, H.R. Kota, V. Ronin:** Kinetics of the hydration reactions in the cement paste with mechanochemically modified cement 29Si magic-angle-spinning NMR study 1575
- L. Mammoliti, C.M. Hansson, B.B. Hope:** Corrosion inhibitors in concrete Part II: Effect on chloride threshold values for corrosion of steel in synthetic pore solutions 1583
- P.N. Gospodinov, R.F. Kazandjiev, T.A. Partalin, M.K. Mironova:** Diffusion of sulfate ions into cement stone regarding simultaneous chemical reactions and resulting effects 1591
- R.D. Tolêdo Filho, M.A. Sanjuán:** Effect of low modulus sisal and polypropylene fibre on the free and restrained shrinkage of mortars at early age 1597
- G. Thevenin, J. Pera:** Interactions between lead and different binders 1605
- H. Li, D.K. Agrawal, J. Cheng, M.R. Silsbee:** Formation and hydration of C<sub>3</sub>S prepared by microwave and conventional sintering 1611
- T. Bakharev, J.G. Sanjayan, Y.-B. Cheng:** Effect of elevated temperature curing on properties of alkali-activated slag concrete 1619
- B. Feret, C.F. Feret:** C<sup>em</sup>QUANT<sup>®</sup> software: Mathematical modeling in quantitative phase analysis of Portland cement 1627
- V. Lilkov, N. Djabarov, G. Bechev, K. Kolev:** Properties and hydration products of lightweight and expansive cements Part I: Physical and mechanical properties 1635
- V. Lilkov, N. Djabarov, G. Bechev, O. Petrov:** Properties and hydration products of lightweight and expansive cements Part II: Hydration products 1641
- B. Persson:** Poisson's ratio of high-performance concrete 1647
- B. Bissonnette, P. Pierre, M. Pigeon:** Influence of key parameters on drying shrinkage of cementitious materials 1655
- D.P. Bentz, E.J. Garboczi, C.J. Haecker, O.M. Jensen:** Effects of cement particle size distribution on performance properties of Portland cement-based materials 1663
- F. Puertas, M.T. Blanco-Varela, T. Vazquez:** Behaviour of cement mortars containing an industrial waste from aluminium refining: Stability in Ca(OH)<sub>2</sub> solutions 1673

## COMMUNICATIONS

- G.K. Glass, N.R. Buenfeld:** Differential acid neutralisation analysis 1681
- M. Shi, Z. Chen, J. Sun:** Kramers-Kronig transform used as stability criterion of concrete 1685
- M. Shi, Z. Chen, J. Sun:** An evaluation of the stability of concrete by Nyquist criterion 1689
- G.W. Sales, K. Kendall, J.S. Lota:** Strength improvement in Portland cement-based boards 1693

## DISCUSSIONS

- L. Fernández-Carrasco:** A discussion of the paper "Hydration reactions of nonstoichiometric barium orthoaluminates" by T.R.N. Kutty and M. Nayak 1697
- T.R.N. Kutty:** A reply to the discussion by Lucia Fernández-Carrasco 1699

## NEWS ITEMS

1701

## PAPERS

- S. Gomes, M. François, M. Abdelmoula, Ph. Refait, C. Pellissier, O. Evrard:** Characterization of magnetite in silico-aluminous fly ash by SEM, TEM, XRD, magnetic susceptibility, and Mössbauer spectroscopy 1705
- C. Freidin:** Hydration and strength development of binder based on high-calcium oil shale fly ash: Part II. Influence of curing conditions on long-term stability 1713
- A. Wang, C. Zhang, N. Zhang:** The theoretic analysis of the influence of the particle size distribution of cement system on the property of cement 1721
- V.G. Papadakis:** Effect of fly ash on Portland cement systems: Part I. Low-calcium fly ash 1727
- M. Tokyay:** Strength prediction of fly ash concretes by accelerated testing 1737
- K.M. Green, M.A. Carter, W.D. Hoff, M.A. Wilson:** The effects of lime and admixtures on the water-retaining properties of cement mortars 1743
- O. Cazalla, E. Sebastián, G. Cultrone, M. Nechar, M.G. Bagur:** Three-way ANOVA interaction analysis and ultrasonic testing to evaluate air lime mortars used in cultural heritage conservation projects 1749
- A. Guerrero, S. Goñi, A. Macías, M.P. Luxán:** Mechanical properties, pore size distribution, and pore solution of fly ash-belite cement mortars 1753
- W. Nocun-Wcelik:** Effect of Na and Al on the phase composition and morphology of autoclaved calcium silicate hydrates 1759
- O. Stránel, T. Sebök:** Relationships between the properties of ligninsulphonates and parameters of modified samples with cement binders: Part III. Determination of sulphonated compounds content, characteristic of sulphonation, sorption studies 1769
- J. Payá, J. Monzó, M.V. Borrachero:** Fluid catalytic cracking catalyst residue (FC3R): An excellent mineral by-product for improving early-strength development of cement mixtures 1773
- M. O'Farrell, S. Wild, B.B. Sabir:** Resistance to chemical attack of ground brick-PC mortar: Part I. Sodium sulphate solution 1781
- S.H. Lee, E. Sakai, M. Daimon, W.K. Bang:** Characterization of fly ash directly collected from electrostatic precipitator 1791
- M. Castellote, C. Andrade, C. Alonso:** Chloride-binding isotherms in concrete submitted to non-steady-state migration experiments 1799
- E.M. Almansa, M.F. Cánovas:** Behaviour of normal and steel fiber-reinforced concrete under impact of small projectiles 1807
- J.H. Potgieter, C.A. Strydom:** Determination of the clay index of limestone with methylene blue adsorption using a UV-VIS spectrophotometric method 1815
- M.M. Abd El-Razek, S.A. Abo-El-Enein:** Moisture performance through fresh concrete at different environmental conditions 1819
- Y. Ding, W. Kusterle:** Comparative study of steel fibre-reinforced concrete and steel mesh-reinforced concrete at early ages in panel tests 1827
- O. Kayali, M.N. Haque, B. Zhu:** Drying shrinkage of fibre-reinforced lightweight aggregate concrete containing fly ash 1835

## COMMUNICATIONS

- S. Stöber, H. Pöllmann:** Synthesis of a lamellar calcium aluminate hydrate (AFm phase) containing benzenesulfonic acid ions 1841
- İ.A. Altun:** Effect of CaF<sub>2</sub> and MgO on sintering of cement clinker 1847
- N.K. Katyal, S.C. Ahluwalia, R. Parkash:** Effect of TiO<sub>2</sub> on the hydration of tricalcium silicate 1851
- N.K. Katyal, S.C. Ahluwalia, R. Parkash:** Effect of barium on the formation of tricalcium silicate 1857
- D.P. Bentz, K.A. Snyder:** Protected paste volume in concrete: Extension to internal curing using saturated lightweight fine aggregate 1863

## ERRATUM

1869

## NEWS ITEMS

1871

1999

Volume 29, Number 12

December

## PAPERS

- J.-Z. Wang, H.-G. Ni, J.-Y. He:** The application of automatic acquisition of knowledge to mix design of concrete 1875
- G. del Cura, P. Garcés, E. García Alcocel:** Petrographical analysis of calcium aluminate cement mortars: Scanning electron microscopy and transmitted light microscopy 1881
- D. Zhang, K. Wu:** Fracture process zone of notched three-point-bending concrete beams 1887
- S.-Y. Hong, F.P. Glasser:** Alkali binding in cement pastes: Part I. The C-S-H phase 1893
- Y.L. Wong, L. Lam, C.S. Poon, F.P. Zhou:** Properties of fly ash-modified cement mortar-aggregate interfaces 1905
- M.H. Shehata, M.D.A. Thomas, R.F. Bleszynski:** The effects of fly ash composition on the chemistry of pore solution in hydrated cement pastes 1915
- J.-K. Kim, C.-S. Lee:** Moisture diffusion of concrete considering self-desiccation at early ages 1921
- P. Maravelaki-Kalaitzaki, G. Moraitou:** Sorel's cement mortars: Decay susceptibility and effect on Pentelic marble 1929
- G. Renaudin, F. Kubel, J.-P. Rivera, M. Francois:** Structural phase transition and high temperature phase structure of Friedels salt,  $3\text{CaO}\cdot\text{Al}_2\text{O}_3\cdot\text{CaCl}_2\cdot 10\text{H}_2\text{O}$  1937
- B.A. Clark, P.W. Brown:** The formation of calcium sulfoaluminate hydrate compounds: Part I 1943
- D. Stephan, R. Mallmann, D. Knöfel, R. Härdtl:** High intakes of Cr, Ni, and Zn in clinker: Part I. Influence on burning process and formation of phases 1949
- D. Stephan, R. Mallmann, D. Knöfel, R. Härdtl:** High intakes of Cr, Ni, and Zn in clinker: Part II. Influence on the hydration properties 1959
- T. Sugama, L. Weber, L.E. Brothers:** Resistance of sodium polyphosphate-modified fly ash/calcium aluminate blend cements to hot  $\text{H}_2\text{SO}_4$  solution 1969
- D.P. Candappa, S. Setunge, J.G. Sanjayan:** Stress versus strain relationship of high strength concrete under high lateral confinement 1977

## COMMUNICATIONS

- K.-R. Wu, J.-Y. Liu, D. Zhang, A. Yan:** Rupture probability of coarse aggregate on fracture surface of concrete 1983
- S. Wen, D.D.L. Chung:** Seebeck effect in carbon fiber-reinforced cement 1989
- D.W. Hobbs:** Aggregate influence on chloride ion diffusion into concrete 1995
- J.I. Escalante-Garcia, G. Mendoza, J.H. Sharp:** Indirect determination of the Ca/Si ratio of the C-S-H gel in Portland cements 1999
- A. Macías, S. Goñi, J. Madrid:** Limitations of Köch-Steinegger test to evaluate the durability of cement pastes in acid medium 2005

## DISCUSSIONS

- R.J. Detwiler:** A discussion of the paper "The occurrence of two-tone structures in room-temperature cured cement pastes" by S. Diamond, J. Olek, and Y. Wang 2011
- S. Diamond, J. Olek, Y. Wang:** Reply to the discussion of the paper "The occurrence of two-tone structures in room-temperature cured cement pastes" 2013

## NEWS ITEMS 2015

## CONTENTS INDEX 2019

## AUTHOR INDEX 2037

## KEYWORD INDEX 2041

2000

Volume 30, Number 1

January

## REVIEWS

- D.W. Hadley, W.L. Dolch, S. Diamond:** On the occurrence of hollow-shell hydration grains in hydrated cement paste 1



## PAPERS

<b>H. El-Didamony, K.A. Khalil, M.S. El-Attar:</b> Physiochemical characteristics of fired clay-limestone mixes	7
<b>I.K. Cisse, M. Laquerbe:</b> Mechanical characterisation of filler sandcretes with rice husk ash additions. Study applied to Senegal	13
<b>S.P. Pandey, R.L. Sharma:</b> The influence of mineral additives on the strength and porosity of OPC mortar	19
<b>A. Ammouche, D. Breyse, H. Hornain, O. Didry, J. Marchand:</b> A new image analysis-technique for the quantitative assessment of microcracks in cement-based materials	25
<b>B. Gérard, J. Marchand:</b> Influence of cracking on the diffusion properties of cement-based materials. Part I: Influence of continuous cracks on the steady-state regime	37
<b>D. Li, X. Wu, J. Shen, Y. Wang:</b> The influence of compound admixtures on the properties of high-content slag cement	45
<b>C. Shi, R.L. Day:</b> Pozzolanic reaction in the presence of chemical activators. Part I: Reaction kinetics	51
<b>Y. Xu, D.D.L. Chung:</b> Effect of sand addition on the specific heat and thermal conductivity of cement	59
<b>C.X. Qian, P. Stroeven:</b> Development of hybrid polypropylene-steel fibre-reinforced concrete	63
<b>C. Cao, W. Sun, H. Qin:</b> The analysis on strength and fly ash effect of roller-compacted concrete with high volume flyash	71
<b>X. Cheng, J. Chang, L. Lu, F. Liu, B. Teng:</b> Study of Ba-bearing calcium sulfoaluminate minerals and cement	77
<b>M. Mainguy, C. Tognazzi, J.-M. Torrenti, F. Adenot:</b> Modelling of leaching in pure cement paste and mortar	83
<b>Y. Shao, T. Lefort, S. Moras, D. Rodriguez:</b> Studies on concrete containing ground waste glass	91
<b>H.M. Jennings:</b> A model for the microstructure of calcium silicate hydrate in cement paste	101
<b>T. Bing, M.D. Cohen:</b> Does gypsum formation during sulfate attack on concrete lead to expansion?	117
<b>P.S. Mangat, F.J. O'Flaherty:</b> Influence of elastic modulus on stress redistribution and cracking in repair patches	125
<b>M.A. Trezza, A.N. Scian:</b> Burning wastes as an industrial resource. Their effect on Portland cement clinker	137
<b>J. Zelić, R. Krstulović, E. Tkalčec, P. Krol:</b> The properties of Portland cement-limestone-silica fume mortars	145
<b>P.M. Zisopoulos, M.D. Kotsovos, M.N. Pavlovic:</b> Deformational behaviour of concrete specimens in uniaxial compression under different boundary conditions	153

## DISCUSSIONS

<b>J. Skalny, I. Odler, F. Young:</b> Discussion of the paper "Sulfate attack," or is it? by W.G. Hime and B. Mather	161
<b>W.G. Hime, B. Mather:</b> Reply to the discussion of the paper "Sulfate attack," or is it?	163

## NEWS ITEMS

2000

Volume 30, Number 2

February

## IN MEMORIAM

<b>H.F.W. Taylor:</b> Alice Elizabeth Moore, 1921–1999	169
--	-----

## PAPERS

<b>S. Orak:</b> Investigation of vibration damping on polymer concrete with polyester resin	171
<b>S. Gomes, M. François:</b> Characterization of mullite in silicoaluminous fly ash by XRD, TEM, and <sup>29</sup> Si MAS NMR	175
<b>S. Kurtz, P. Balaguru:</b> Postcrack creep of polymeric fiber-reinforced concrete in flexure	183
<b>E.M. Schulson, I.P. Swainson, T.M. Holden, C.J. Korhonen:</b> Hexagonal ice in hardened cement	191
<b>K. Yamada, T. Takahashi, S. Hanehara, M. Matsuhisa:</b> Effects of the chemical structure on the properties of polycarboxylate-type superplasticizer	197
<b>M. Frías, M.I. Sánchez de Rojas, J. Cabrera:</b> The effect that the pozzolanic reaction of metakaolin has on the heat evolution in metakaolin-cement mortars	209

<b>O. Truc, J.P. Ollivier, M. Carcassès:</b> A new way for determining the chloride diffusion coefficient in concrete from steady state migration test	217
<b>Z. Lu, X. Zhou:</b> The waterproofing characteristics of polymer sodium carboxymethyl-cellulose	227
<b>B.A. Clark, P.W. Brown:</b> The formation of calcium sulfoaluminate hydrate compounds. Part II	233
<b>Y. Xu, D.D.L. Chung:</b> Reducing the drying shrinkage of cement paste by admixture surface treatments	241
<b>Y.N. Chan, X. Luo, W. Sun:</b> Compressive strength and pore structure of high-performance concrete after exposure to high temperature up to 800 °C	247
<b>M. Kuroda, T. Watanabe, N. Terashi:</b> Increase of bond strength at interfacial transition zone by the use of ash fly	253
<b>M. El-Hawary, H. Al-Khaiat, S. Fereig:</b> Performance of epoxy-repaired concrete in a marine environment	259
<b>M.Y.A. Mollah, W. Yu, R. Schennach, D.L. Cocks:</b> A Fourier transform infrared spectroscopic investigation of the early hydration of Portland cement and the influence of sodium lignosulfonate	267
<b>P. Yan, W. Yang:</b> The cementitious binder derived with fluorogypsum and low quality of fly ash	275
<b>H. Akgün, J.J.K. Daemen:</b> Influence of degree of saturation on the borehole sealing performance of an expansive cement grout	281
<b>V.G. Papadakis:</b> Effect of supplementary cementing materials on concrete resistance against carbonation and chloride ingress	291
<b>H. Kada-Benameur, E. Wirquin, B. Duthoit:</b> Determination of apparent activation energy of concrete by isothermal calorimetry	301
<b>G. Renaudin, J.-P. Rapin, B. Humbert, M. François:</b> Thermal behavior of the nitrated AFm phase $\text{Ca}_4\text{Al}_2(\text{OH})_{12}(\text{NO}_3)_2 \cdot 4\text{H}_2\text{O}$ and structure determination of the intermediate hydrate $\text{Ca}_4\text{Al}_2(\text{OH})_{12}(\text{NO}_3)_2 \cdot 2\text{H}_2\text{O}$	307
<b>E. Soudée, J. Péra:</b> Mechanism of setting reaction in magnesia-phosphate cements	315

## COMMUNICATIONS

<b>X. Luo, D.D.L. Chung:</b> Concrete-concrete pressure contacts under dynamic loading, studied by contact electrical resistance measurement	323
<b>S. Wen, D.D.L. Chung:</b> Enhancing the vibration reduction ability of concrete by using steel reinforcement and steel surface treatments	327

## DISCUSSIONS

<b>B. Mather:</b> Discussion of the paper "Durability of the hydrated limestone-silica fume Portland cement mortars under sulphate attack" by J. Zelić R. Zelić Krstulović, E. Tkalčec, and P. Kroló	331
<b>J. Zelić, R. Krstulović, E. Tkalčec, P. Kroló:</b> Reply to the discussion of the paper "Durability of the hydrated limestone-silica fume Portland cement mortars under sulphate attack"	333

## NEWS ITEMS

2000

Volume 30, Number 3

March

## PAPERS

<b>T. Ramlochan, M. Thomas, K.A. Gruber:</b> The effect of metakaolin on alkali-silica reaction in concrete	339
<b>S. Kumar:</b> Influence of water quality on the strength of plain and blended cement concretes in marine environments	345
<b>C.F. Mora, A.K.H. Kwan:</b> Sphericity, shape factor, and convexity measurement of coarse aggregate for concrete using digital image processing	351
<b>J.J. Beaudoin, B. Tamtsia, J. Marchand, H.R. Myers:</b> Solvent exchange in partially saturated and saturated microporous systems: Length change anomalies	359
<b>M.M. Shoaib, M.M. Balaha, A.G. Abdel-Rahman:</b> Influence of cement kiln dust substitution on the mechanical properties of concrete	371
<b>X. Luo, W. Sun, S.Y.N. Chan:</b> Effect of heating and cooling regimes on residual strength and microstructure of normal strength and high-performance concrete	379

<b>S. Wang, C. Vipulanandan:</b> Solidification/stabilization of Cr(VI) with cement: Leachability and XRD analyses	385
<b>L. Yan, C.H. Jenkins, R.L. Pendleton:</b> Polyolefin fiber-reinforced concrete composites: Part I. Damping and frequency characteristics	391
<b>L. Yan, C.H. Jenkins, R.L. Pendleton:</b> Polyolefin fiber-reinforced concrete composites: Part II. Damping and interface debonding	403
<b>P.W. Brown, A. Doerr:</b> Chemical changes in concrete due to the ingress of aggressive species	411
<b>Z.P. Bazant, A. Steffens:</b> Mathematical model for kinetics of alkali-silica reaction in concrete	419
<b>C.-K. Park:</b> Hydration and solidification of hazardous wastes containing heavy metals using modified cementitious materials	429
<b>D. Anderson, A. Roy, R.K. Seals, F.K. Cartledge, H. Akhter, S.C. Jones:</b> A preliminary assessment of the use of an amorphous silica residual as a supplementary cementing material	437
<b>C.S. Poon, L. Lam, Y.L. Wong:</b> A study on high strength concrete prepared with large volumes of low calcium fly ash	447
<b>N. Narayanan, K. Ramamurthy:</b> Microstructural investigations on aerated concrete	457
<b>C.-M. Aldea, F. Young, K. Wang, S.P. Shah:</b> Effects of curing conditions on properties on concrete using slag replacement	465
<b>M. Öner:</b> A study of intergrinding and separate grinding of blast furnace slag cement	473
<b>V. Pavlík:</b> Effect of carbonates on the corrosion rate of cement mortars in nitric acid	481

## COMMUNICATION

<b>C. Hall, S.L. Colston, A.C. Jupe, S.D.M. Jacques, R. Livingston, A.O.A. Ramadan, A.W. Amde, P. Barnes:</b> Non-destructive tomographic energy-dispersive diffraction imaging of the interior of bulk concrete	491
--	-----

## TECHNICAL NOTE

<b>N. Ay, M. Ünal:</b> The use of waste ceramic tile in cement production	497
---	-----

## DISCUSSIONS

<b>S. Chatterji:</b> A discussion of the paper "The alkali-silica reaction. The surface charge density of silica and its effect on expansive pressure" by F.A. Rodrigues, P.J.M. Monteiro, and G. Sposito	501
<b>F.A. Rodrigues, P.J.M. Monteiro, G. Sposito:</b> Reply to the discussion of the paper "The alkali-silica reaction: The surface charge density of silica and its effect on expansive pressure"	503

## BOOK REVIEW

<b>J. Skalny:</b> Ettringite-the sometimes host of destruction; B. Erlin (Ed.)	505
--	-----

<b>NEWS ITEMS</b>	507
<b>KEYWORDS</b>	510

2000

Volume 30, Number 4

April

## PAPERS

<b>T. Sebök, O. Stránel:</b> Relationships between the properties of ligninsulphonates and parameters of modified samples with cement binders: Part IV. Influence of sulphonated compounds and sulphonation characteristics on the properties of mortar samples	511
<b>N.P. Luxán, R. Sotolongo, F. Dorrego, E. Herrero:</b> Characteristics of the slags produced in the fusion of scrap steel by electric arc furnace	517
<b>R. Vocka, C. Gallé, M. Dubols, P. Lovera:</b> Mercury intrusion porosimetry and hierarchical structure of cement pastes: Theory and experiment	521
<b>D.W. Hobbs, M.G. Taylor:</b> Nature of the thaumasite sulfate attack mechanism in field concrete	529

<b>E.W. Hansen, H.C. Gran, Y. Machabée:</b> FLR technique exchange of methanol/fluorescent dye with water in water-saturated cement paste examined by NMR	535
<b>J. Payá, J. Monzó, M.V. Borrachero, E. Peris-Mora, F. Amahjour:</b> Mechanical treatment of fly ashes. Part IV. Strength development of ground fly ash-cement mortars cured at different temperatures	543
<b>A. Guerrero, S. Goñi, A. Macías, M.P. Luxán:</b> Effects of the starting fly ash on the microstructure and mechanical properties of fly ash-belite cement mortars	553
<b>M. Frías, J. Cabrera:</b> Pore size distribution and degree of hydration of metakaolincement pastes	561
<b>M. Singh, M. Garg:</b> Making of anhydrite cement from waste gypsum	571
<b>G. Prokopski, J. Halbiniak:</b> Interfacial transition zone in cementitious materials	579
<b>J.M. Torrents, T.O. Mason, E.J. Garboczi:</b> Impedance spectra of fiber-reinforced cement-based composites: A modeling approach	585
<b>M.C. Nataraja, N. Dhang, A.P. Gupta:</b> Toughness characterization of steel fiber-reinforced concrete by JSCE approach	593
<b>N. Su, Y.-H. Wu, C.-Y. Mar:</b> Effect of magnetic water on the engineering properties of concrete containing granulated blast-furnace slag	599
<b>C. Shi, R.L. Day:</b> Pozzolanic reaction in the presence of chemical activators: Part II. Reaction products and mechanism	607
<b>M. Castellote, C. Andrade, C. Alonso:</b> Electrochemical removal of chlorides: Modelling of the extraction, resulting profiles and determination of the efficient time of treatment	615
<b>J. Monteny, E. Vincke, A. Beeldens, N. De Belie, L. Taerwe, D. Van Gemert, W. Verstraete:</b> Chemical, microbiological, and in situ test methods for biogenic sulfuric acid corrosion of concrete	623
<b>C. Monticelli, A. Frignani, G. Trabanelli:</b> A study on corrosion inhibitors for concrete application	635

## COMMUNICATIONS

<b>X. Lu, F. Yuan:</b> Breakdown voltage and transition zone of concrete	643
<b>X. Fu, W. Hou, C. Yang, D. Li, X. Wu:</b> Studies on Portland cement with large amount of slag	645
<b>D.-M. Bontea, D.D.L. Chung, G.C. Lee:</b> Damage in carbon fiber-reinforced concrete, monitored by electrical resistance measurement	651
<b>S. Wen, D.D.L. Chung:</b> Seebeck effect in steel fiber reinforced cement	661

## DISCUSSIONS

<b>P.E. Grattan-Bellew:</b> A discussion of the paper "Delayed ettringite formation in heat-cured Portland cement mortars" by R. Yang, C.D. Lawrence, C.J. Lynsdale, J.H. Sharp	665
<b>R. Yang, C.D. Lawrence, C.J. Lynsdale, J.H. Sharp:</b> Reply to the discussion by P.E. Grattan-Bellew of the paper "Delayed ettringite formation in heat-cured Portland cement mortars"	667
<b>S. Chatterji:</b> A discussion of the paper "Crystallisation in pores" by G.W. Scherer	669
<b>G.W. Scherer:</b> Reply to the discussion by S. Chatterji of the paper "Crystallization in pores"	673

## NEWS ITEMS

677

2000

Volume 30, Number 5

May

## PAPERS

<b>G. Xu, J.J. Beaudoin, C. Jolicoeur, M. Pagé:</b> The effect of a polynaphthalene sulfonate superplasticizer on the contribution of the interfacial transition zone to the electrical resistivity of mortars containing silica and limestone fine aggregate	683
<b>R. Krstulovic, P. Dabic:</b> A conceptual model of the cement hydration process	693
<b>L. Jiang, B. Lin, Y. Cai:</b> A model for predicting carbonation of high-volume fly ash concrete	699
<b>V. Bonavetti, H. Donza, V. Rahhal, E. Irassar:</b> Influence of initial curing on the properties of concrete containing limestone blended cement	703
<b>V.S. Harutyunyan, E.S. Abovyan, P.J.M. Monteiro, V.P. Mkrtchyan, M.K. Balyan:</b> Microstrain distribution in calcium hydroxide present in the interfacial transition zone	709

<b>Z. Agioutantis, E. Chatzopoulou, M. Stavroulaki:</b> A numerical investigation of the effect of the interfacial zone in concrete mixtures under uniaxial compression: The case of the dilute limit	715
<b>N. Gowripalan, V. Sirivivatnanon, C.C. Lim:</b> Chloride diffusivity of concrete cracked in flexure	725
<b>G.V. Guinea, G. Hussein, M. Elices, J. Planas:</b> Micromechanical modeling of brickmasonry fracture	731
<b>H.Y. Qasrawi:</b> Concrete strength by combined nondestructive methods: Simply and reliably predicted	739
<b>L. Lam, Y.L. Wong, C.S. Poon:</b> Degree of hydration and gel/space ratio of high-volume fly ash/cement systems	747
<b>M. O'Farrell, S. Wild, B.B. Sabir:</b> Resistance to chemical attack of ground brick-PC mortar: Part II. Synthetic seawater	757
<b>S. Erdogdu:</b> Compatibility of superplasticizers with cements different in composition	767
<b>R. Yang, N.R. Buenfeld:</b> Microstructural identification of thaumasite in concrete by backscattered electron imaging at low vacuum	775
<b>A. Peled, A. Bentur:</b> Geometrical characteristics and efficiency of textile fabrics for reinforcing cement composites	781
<b>F. Collins, J.G. Sanjayan:</b> Cracking tendency of alkali-activated slag concrete subjected to restrained shrinkage	791
<b>Z. Mei, D.D.L. Chung:</b> Effects of temperature and stress on the interface between concrete and its carbon fiber epoxy-matrix composite retrofit, studied by electrical resistance measurement	799
<b>C. Shi, J.A. Stegemann:</b> Acid corrosion resistance of different cementing materials	803
<b>M.F. Petrou, K.A. Harries, F. Gadala-Maria, V.G. Kolli:</b> A unique experimental method for monitoring aggregate settlement in concrete	809
<b>E.M. Gartner, K.E. Kurtis, P.J.M. Monteiro:</b> Proposed mechanism of C-S-H growth tested by soft X-ray microscopy	817

## COMMUNICATIONS

<b>N.M. Agyei, C.A. Strydom, J.H. Potgieter:</b> An investigation of phosphate ion adsorption from aqueous solution by fly ash and slag	823
<b>X. Zhang, J. Han:</b> The effect of ultra-fine admixture on the rheological property of cement paste	827

## DISCUSSIONS

<b>E.F. Irassar:</b> A discussion of the paper "Durability of the hydrated limestone-silica fume Portland cement mortars under sulphate attack" by J. Zelić, R. Krstulović, E. Tkalčec, and P. Krolo	831
<b>J. Zelić, R. Krstulović, E. Tkalčec, P. Krolo:</b> Reply to the discussion by E.F. Irassar of the paper "Durability of the hydrated limestone-silica fume Portland cement mortars under sulphate attack"	833
<b>M.N. Haque:</b> A discussion of the paper "Influence of the superplasticizer, plasticizer and silica fume on the drying shrinkage of high-strength concrete subjected to hot-dry field conditions" by S.H. Alysayed	835

## BOOK REVIEW

<b>J. Skalny:</b> Eminent Civil Engineers - Their 20th Century Life and Times; D. Doran (Ed.)	837
---	-----

<b>NEWS ITEMS</b>	839
-------------------	-----

2000	Volume 30, Number 6	June
------	---------------------	------

## PAPERS

<b>R. Piltner, P.J.M. Monteiro:</b> Stress analysis of expansive reactions in concrete	843
<b>A.R. Brough, A. Atkinson:</b> Automated identification of the aggregate-paste interfacial transition zone in mortars of silica sand with Portland or alkali-activated slag cement paste	849
<b>P.D. Tennis, H.M. Jennings:</b> A model for two types of calcium silicate hydrate in the microstructure of Portland cement pastes	855
<b>W.W.J. Chan, C.M.L. Wu:</b> Durability of concrete with high cement replacement	865
<b>D. Li, Y. Chen, J. Shen, J. Su, X. Wu:</b> The influence of alkalinity on activation and microstructure of fly ash	881
<b>B.-G. Kim, S. Jiang, C. Jolicoeur, P.-C. Aïtcin:</b> The adsorption behavior of PNS superplasticizer and its relation to fluidity of cement paste	887



<b>V. Pavlík:</b> Water extraction of chloride, hydroxide and other ions from hardened cement pastes	895
<b>X. Luo, W. Sun, S.Y.N. Chan:</b> Characteristics of high-performance steel fiber-reinforced concrete subject to high velocity impact	907
<b>A. Loukili, D. Chopin, A. Khelidj, J.-Y.L. Touzo:</b> A new approach to determine autogenous shrinkage of mortar at an early age considering temperature history	915
<b>G. Levita, A. Marchetti, G. Gallone, A. Princigallo, G.L. Guerrini:</b> Electrical properties of fluidified Portland cement mixes in the early stage of hydration	923
<b>J. Tritt-Goc, N. Piślewski, S. Kościelski, F. Milia:</b> The influence of superplasticizer on the hydration and freezing processes in white cement studied by <sup>1</sup> H spin-lattice relaxation time and single point imaging	931
<b>M.L. Allan:</b> Materials characterization of superplasticized cement-sand grout	937
<b>S. Igarashi, H.R. Kubo, M. Kawamura:</b> Long-term volume changes and microcracks formation in high strength mortars	943
<b>D.P. Bentz, O.M. Jensen, A.M. Coats, F.P. Glasser:</b> Influence of silica fume on diffusivity in cement-based materials: I. Experimental and computer modeling studies on cement pastes	953
<b>Y. Li, Y. Sun:</b> Preliminary study on combined-alkali-slag paste materials	963

## COMMUNICATIONS

<b>A. Öztürk, Y. Suyadal, H. Oguz:</b> The formation of belite phase by using phosphogypsum and oil shale	967
<b>X. Lu, M. Chen, F. Yuan:</b> Evaluation of concrete permeability by critical voltage	973
<b>M.M. Ali, S.K. Agarwal, A.K. Solankey, S.K. Handoo:</b> High-performance, marble-like plaster coatings	977
<b>K.-R. Wu, A. Yan, J.-Y. Liu, D. Zhang, W. Yao:</b> Reconstruction and analysis of 3-D profile of fracture surface of concrete	981
<b>F. Leng, N. Feng, X. Lu:</b> An experimental study on the properties of resistance to diffusion of chloride ions of fly ash and blast furnace slag concrete	989
<b>T. Sebök, M. Vondruska:</b> Interaction of anhydrite and melamine-formaldehyde polycondensates in aqueous suspensions	993

## DISCUSSIONS

<b>S. Chatterji:</b> A discussion of the papers "Concentration dependence of diffusion and migration of chloride ions. Part 1 and 2" by Luping Tang	1005
<b>L. Tang:</b> Reply to the discussion of the papers "Concentration dependence of diffusion and migration of chloride ions. Part 1 and Part 2" by S. Chatterji	1007

## NEWS ITEMS

	1009
--	------

2000	Volume 30, Number 7	July
------	---------------------	------

## PAPERS

<b>C. Gong, N. Yang:</b> Effect of phosphate on the hydration of alkali-activated red mud-slag cementitious material	1013
<b>P. Dabić, R. Krstulović, D. Rušić:</b> A new approach in mathematical modelling of cement hydration development	1017
<b>F. Guirado, S. Galí, S. Chinchón:</b> Quantitative Rietveld analysis of aluminous cement clinker phases	1023
<b>K.G. Babu, V.S.R. Kumar:</b> Efficiency of GGBS in concrete	1031
<b>N. Bouzoubaâ, M.H. Zhang, V.M. Malhotra:</b> Laboratory-produced high-volume fly ash blended cements: Compressive strength and resistance to the chloride-ion penetration of concrete	1037
<b>C. Alonso, C. Andrade, M. Castellote, P. Castro:</b> Chloride threshold values to depassivate reinforcing bars embedded in a standardized OPC mortar	1047
<b>Y. El Hafiane, A. Smith, J.P. Bonnet, P. Abèlard, P. Blanchart:</b> Electrical characterization of aluminous cement at the early age in the 10 Hz–1 GHz frequency range	1057
<b>M.H. Shehata, M.D.A. Thomas:</b> The effect of fly ash composition on the expansion of concrete due to alkali-silica reaction	1063
<b>G. Kakali, S. Tsivilis, E. Aggeli, M. Bati:</b> Hydration products of C <sub>3</sub> A, C <sub>3</sub> S and Portland cement in the presence of CaCO <sub>3</sub>	1073

- H.A. van der Sloot:** Comparison of the characteristic leaching behavior of cements using standard (EN 196-1) cement mortar and an assessment of their long-term environmental behavior in construction products during service life and recycling 1079
- M. Cyr, A. Carles-Gibergues, A. Tagnit-Hamou:** Titanium fume and ilmenite fines characterization for their use in cement-based materials 1097
- I.J. Graham, R.L. Goguel, D.A. St John:** Use of strontium isotopes to determine the origin of cement in concretes: Case examples from New Zealand 1105
- T. Yuko, T. Ikabata, T. Akiyama, T. Yamamoto, N. Kurumada:** New clinker formation process by the fluidized bed kiln system 1113
- B. Mu, Z. Li, J. Peng:** Short fiber-reinforced cementitious extruded plates with high percentage of slag and different fibers 1277

## COMMUNICATIONS

- M.F.M. Zain, S.S. Radin:** Physical properties of high-performance concrete with admixtures exposed to a medium temperature range 20 °C to 50 °C 1283
- S. Wen, D.D.L. Chung:** Uniaxial tension in carbon fiber reinforced cement, sensed by electrical resistivity measurement in longitudinal and transverse directions 1289
- S. Wen, D.D.L. Chung:** Enhancing the Seeback effect in carbon fiber-reinforced cement by using intercalated carbon fibers 1295
- W. Zhu, P.J.M. Bartos:** Application of depth-sensing microindentation testing to study of interfacial transition zone in reinforced concrete 1299
- Y. Xu, D.L.L. Chung:** Improving silica fume cement by using silane 1305
- Q. Yang, P. Zhu, X. Wu, S. Huang:** Properties of concrete with a new type of saponin air-entraining agent 1313

## DISCUSSIONS

- S. Chatterji:** A discussion of the paper "Delayed ettringite formation in heat-cured Portland cement mortars" by R. Yang, C.D. Lawrence, C.J. Lynsdale and J.H. Sharp 1319
- R. Yang, C.D. Lawrence, C.J. Lynsdale, J.H. Sharp:** Reply to the discussion by S. Chatterji of the paper "Delayed ettringite formation in heat-cured Portland cement mortars" 1321
- K.O. Kjellsen:** A discussion of the paper "Kinetics of the hydration reactions in the cement paste with mechanochemically modified cement <sup>29</sup>Si magic-angle-spinning NMR study" by K. Johansson, C. Larsson, O.N. Antzutkin, W. Forsling, H.R. Kota and V. Ronin 1323
- K. Johansson, C. Larsson, O.N. Antzutkin, W. Forsling, H.R. Kota, V. Ronin:** Reply to the discussion by Knut O. Kjellsen of the paper "Kinetics of the hydration reactions in the cement paste with mechanochemically modified cement <sup>29</sup>Si magic-angle-spinning NMR study" 1325
- C. Andrade:** A discussion of the paper "Concentration dependence of diffusion and migration of chloride ions. Part I and Part II" by Luping Tang 1329

## NEWS ITEMS 1179

## IN MEMORIUM

- O. Shixi:** Professor Wu Zhongwei: July 20, 1918-February 4, 2000 1183

2000

Volume 30, Number 8

August

## PAPERS

- M. Singh:** Influence of blended gypsum on the properties of Portland cement and Portland slag cement 1185
- H. Biricik, F. Aköz, F. Türker, I. Berktaş:** Resistance to magnesium sulfate and sodium sulfate attack of mortars containing wheat straw ash 1189
- K. Hong, R.D. Hooton:** Effects of fresh water exposure on chloride contaminated concrete 1199
- K. Kiattikomol, C. Jaturapitakkul, J. Tangpagasit:** Effect of insoluble residue on properties of Portland cement 1209

- B. Martín-Pérez, H. Zibara, R.D. Hooton, M.D.A. Thomas:** A study of the effect of chloride binding on service life predictions 1215
- M.I. Khan, C.J. Lynsdale, P. Waldron:** Porosity and strength of PFA/SF/OPC ternary blended paste 1225
- A. Guerrero, S. Goñi, A. Macías:** Durability of new fly ash-belite cement mortars in sulfated and chloride medium 1231
- X. Fu, W. Hou, C. Yang, D. Li, X. Wu:** Studies on high-strength slag and fly ash compound cement 1239
- H.-G. Ni, J.-Z. Wang:** Prediction of compressive strength of concrete by neural networks 1245
- M. Sun, Z. Li, Q. Liu, Z. Tang, D. Shen:** A study on thermal self-diagnostic and self-adaptive smart concrete structures 1251
- W.P.S. Dias:** Reduction of concrete sorptivity with age through carbonation 1255
- S. Grzeszczyk, K. Front:** Effect of superplasticizers on the rheological properties of fly ash suspensions containing activators of the pozzolanic reaction 1263
- R. Černý, J. Maděra, J. Poděbradská, J. Toman, J. Drchalová, T. Klečka, K. Jurek, P. Rovnaníková:** The effect of compressive stress on thermal and hygric properties of Portland cement mortar in wide temperature and moisture ranges 1267
- B. Mu, Z. Li, J. Peng:** Short fiber-reinforced cementitious extruded plates with high percentage of slag and different fibers 1277

## COMMUNICATIONS

- M.F.M. Zain, S.S. Radin:** Physical properties of high-performance concrete with admixtures exposed to a medium temperature range 20°C to 50°C 1283
- S. Wen, D.D.L. Chung:** Uniaxial tension in carbon fiber reinforced cement, sensed by electrical resistivity measurement in longitudinal and transverse directions 1289
- S. Wen, D.D.L. Chung:** Enhancing the Seebeck effect in carbon fiber-reinforced cement by using intercalated carbon fibers 1295
- W. Zhu, P.J.M. Bartos:** Application of depth-sensing microindentation testing to study of interfacial transition zone in reinforced concrete 1299
- Y. Xu, D.L.L. Chung:** Improving silica fume cement by using silane 1305
- Q. Yang, P. Zhu, X. Wu, S. Huang:** Properties of concrete with a new type of saponin air-entraining agent 1313

## DISCUSSIONS

- S. Chatterji:** A discussion of the paper "Delayed ettringite formation in heat-cured Portland cement mortars" by R. Yang, C.D. Lawrence, C.J. Lynsdale and J.H. Sharp 1319
- R. Yang, C.D. Lawrence, C.J. Lynsdale, J.H. Sharp:** Reply to the discussion by S. Chatterji of the paper "Delayed ettringite formation in heat-cured Portland cement mortars" 1321
- K.O. Kjellsen:** A discussion of the paper "Kinetics of the hydration reactions in the cement paste with mechanochemically modified cement <sup>29</sup>Si magic-angle-spinning NMR study" by K. Johansson, C. Larsson, O.N. Antzutkin, W. Forsling, H.R. Kota and V. Ronin 1323
- K. Johansson, C. Larsson, O.N. Antzutkin, W. Forsling, H.R. Kota, V. Ronin:** Reply to the discussion by Knut O. Kjellsen of the paper "Kinetics of the hydration reactions in the cement paste with mechanochemically modified cement: <sup>29</sup>Si magic-angle-spinning NMR study" 1325
- C. Andrade:** A discussion of the paper "Concentration dependence of diffusion and migration of chloride ions. Part I and Part II" by Luping Tang 1329
- L. Tang:** Reply to the discussion by Carmen Andrade of the paper "Concentration dependence of diffusion and migration of chloride ions. Part I and Part 2" 1331
- J. Bensted, J. Munn:** A discussion of the paper "Durability of the hydrated limestone-silica fume Portland cement mortars under sulphate attack" by J. Zelić, R. Krstulović, E. Tkalčec and P. Krolo 1333
- J. Zelić, R. Krstulović, E. Tkalčec, P. Krolo:** Reply to the discussion by J. Bensted and J. Munn of the paper "Durability of the hydrated limestone-silica fume Portland cement mortars under sulphate attack" 1335
- I. Odler:** Discussion of the paper "A model for the microstructure of calcium silicate hydrate in cement pastes" by H.M. Jennings 1337
- H.M. Jennings:** Reply to the discussion of the paper by Ivan Odler "A model for the microstructure of calcium silicatehydrate in cement paste" 1339

## BOOK REVIEW

- I. Odler:** Sulfate attack mechanism; Jacques Marchand and Jan P. Skalny (Eds.) 1343

## NEWS ITEMS

1345

2000

Volume 30, Number 9

September

## REVIEW

- P.-C. Aïtcin:** Cements of yesterday and today: Concrete of tomorrow 1349

## PAPERS

- N.K. Katyal, S.C. Ahluwalia, R. Parkash:** Effect of  $\text{Cr}_2\text{O}_3$  on the formation of  $\text{C}_3\text{S}$  in  $3\text{CaO}:\text{SiO}_2:\text{xCr}_2\text{O}_3$  system 1361
- T. Bakharev, J.G. Sanjayan, Y.-B. Cheng:** Effect of admixtures on properties of alkali-activated slag concrete 1367
- A.R. Brough, M. Holloway, J. Sykes, A. Atkinson:** Sodium silicate-based alkali-activated slag mortars: Part II. The retarding effect of additions of sodium chloride or malic acid 1375
- D. Li, J. Shen, Y. Chen, L. Cheng, X. Wu:** Study of properties on fly ash-slag complex cement 1381
- M.C. Santagata, M. Collepardi:** The effect of CMA deicers on concrete properties 1389
- W.J. McCarter, G. Starrs, T.M. Chrisp:** Electrical conductivity, diffusion, and permeability of Portland cement-based mortars 1395
- F. Collins, J.G. Sanjayan:** Effect of pore size distribution on drying shrinkage of alkali-activated slag concrete 1401
- O.R. Batic, C.A. Milanese, P.J. Maiza, S.A. Marfil:** Secondary ettringite formation in concrete subjected to different curing conditions 1407
- J.I. Alvarez, I. Navarro, A. Martín, P.J. García Casado:** A study of the ancient mortars in the north tower of Pamplona's San Cernin church 1413
- N. Segre, I. Joekes:** Use of tire rubber particles as addition to cement paste 1421
- G. Prokopski, B. Langier:** Effect of water/cement ratio and silica fume addition on the fracture toughness and morphology of fractured surfaces of gravel concretes 1427
- N. Tsuyuki, R. Watanabe, K. Koizumi, Y. Umemura, O. Machinaga:** Effects of barium salt on the fixation of chloride ions in hardened mortars 1435
- K.-C. Werner, Y. Chen, I. Odler:** Investigations on stress corrosion of hardened cement pastes 1443
- K. Van Den Abele, J. De Visscher:** Damage assessment in reinforced concrete using spectral and temporal nonlinear vibration techniques 1453
- B.T. Tamtsia, J.J. Beaudoin:** Basic creep of hardened cement paste: A re-examination of the role of water 1465
- M. Cyr, C. Legrand, M. Mouret:** Study of the shear thickening effect of superplasticizers on the rheological behaviour of cement pastes containing or not mineral additives 1477

## COMMUNICATIONS

- N.B. Singh, V.D. Singh, S. Rai:** Hydration of bagasse ash-blended Portland cement 1485
- B. Liu, Y. Xie, S. Zhou, Q. Yuan:** Influence of ultrafine fly ash composite on the fluidity and compressive strength of concrete 1489
- K. Wu, B. Chen, W. Yao:** Study on the AE characteristics of fracture process of mortar, concrete and steel-fiber-reinforced concrete beams 1495
- M.F.M. Zain, Md. Safluddin, H. Mahmud:** Development of high performance concrete using silica fume at relatively high water-binder ratios 1501

## DISCUSSIONS

- J. Bensted, J. Munn:** A discussion of the paper "Study of pozzolanic properties of wheat straw ash" by H. Biricik, F. Aköz, I. Berktaş, and A.N. Tulgar 1507
- H. Biricik:** Reply to the discussion by J. Bensted and J. Munn of the paper "Study of pozzolanic properties of wheat straw ash" 1509

## BOOK REVIEW

- J.P. Skalny: *Special Inorganic Cements*; A Bentur and S. Mindess (Eds.) 1511

## NEWS ITEMS

1513

2000

Volume 30, Number 10

October

## REVIEW

- S. Diamond: Mercury porosimetry: An inappropriate method for the measurement of pore size distributions in cement-based materials 1517

## PAPERS

- C. Rodriguez-Navarro, E. Doehne, E. Sebastian: How does sodium sulfate crystallize? Implications for the decay and testing of building materials 1527
- P.W. Brown, S. Badger: The distributions of bound sulfates and chlorides in concrete subjected to mixed NaCl, MgSO<sub>4</sub>, Na<sub>2</sub>SO<sub>4</sub> attack 1535
- J.L. Gallias, R. Kara-Ali, J.P. Bigas: The effect of fine mineral admixtures on water requirement of cement pastes 1543
- V. Vlachou, J.-M. Piau: A new tool for the rheometric study of oil well cement slurries and other settling suspensions 1551
- M.S. Goual, F. de Barquin, M.L. Benmalek, A. Bali, M. Quéneudec: Estimation of the capillary transport coefficient of Clayey Aerated Concrete using a gravimetric technique 1559
- P. Castro, E.I. Moreno, J. Genescá: Influence of marine micro-climates on carbonation of reinforced concrete buildings 1565
- Y. Ding, W. Kusterle: Compressive stress-strain relationship of steel fibre-reinforced concrete at early age 1573
- O. Truc, J.-P. Ollivier, L.-O. Nilsson: Numerical simulation of multi-species transport through saturated concrete during a migration test -MsDiff code 1581
- M. Sun, Q. Liu, Z. Li, Y. Hu: A study of piezoelectric properties of carbon fiber reinforced concrete and plain cement paste during dynamic loading 1593
- N. Schmitt, J.-F. Hernandez, V. Lamour, Y. Berthaud, P. Meunier, J. Poirier: Coupling between kinetics of dehydration, physical and mechanical behaviour for high alumina castable 1597
- P. Gleize, D.A. Silva, S. Nappi: Ancient rendering mortars from a Brilian palace: Its characteristics and microstructure 1609
- N. Menek, Z. Heren: Analysis of triethanolamine in trass cement by voltammetric methods 1615
- C.L. Dickson, F.P. Glasser: Cerium(III, IV) in cement: Implications for actinide (III, IV) immobilisation 1619
- F. Puertas, S. Martínez-Ramírez, S. Alonso, T. Vázquez: Alkali-activated fly ash/slag cement: Strength behaviour and hydration products 1625
- M.I. Valić: Hydration of cementitious materials by pulse echo USWR: Method, apparatus and application examples 1633
- E.A. Ortega, C. Cheeseman, J. Knight, M. Loizidou: Properties of alkali-activated clinoptilolite 1641
- V.G. Papadakis: Effect of fly ash on Portland cement systems: Part II. High-calcium fly ash 1647
- J. Zelić, D. Rušić, D. Veža, R. Krstulović: The role of silica fume in the kinetics and mechanisms during the early stage of cement hydration 1655
- M. Nehdi: Why some carbonate fillers cause rapid increases of viscosity in dispersed cement-based materials 1663
- S. Valls, E. Vázquez: Stabilisation and solidification of sewage sludges with Portland cement 1671
- S. Tsvilis, G. Batis, E. Chaniotakis, Gr. Grigoriadis, D. Theodossis: Properties and behavior of limestone cement concrete and mortar 1679

## NEWS ITEMS

1685



## PAPERS

- E. García Alcocel, P. Garcés, S. Chinchón:** General study of alkaline hydrolysis in calcium aluminate cement mortars under a broad range of experimental conditions 1689
- S. Igarashi, A. Bentur, K. Kovler:** Autogenous shrinkage and induced restraining stresses in high-strength concretes 1701
- T. Vuk, T. Ljubič-Mlakar, R. Gabrovšek, V. Kaučič:** Tertiary gelation of oilwell cement 1709
- F. Blanco, P. García, P. Mateos, J. Ayala:** Characteristics and properties of lightweight concrete manufactured with cenospheres 1715
- G. Song:** Equivalent circuit model for AC electrochemical impedance spectroscopy of concrete 1723
- D. Kalogridis, G. Ch. Kostogioudis, Ch. Ftikos, Ch. Malami:** A quantitative study of the influence of non-expansive sulfoaluminate cement on the corrosion of steel reinforcement 1731
- F. Matsushita, Y. Aono, S. Shibata:** Carbonation degree of autoclaved aerated concrete 1741
- P. Purnell, N.R. Short, C.L. Page, A.J. Majumdar:** Microstructural observations in new matrix glass fibre reinforced cement 1747
- M.H. Ozkul:** Utilization of citro- and desulphogypsum as set retarders in Portland cement 1755
- H. Hodne, A. Saasen, A.B. O'Hagan, S.O. Wick:** Effects of time and shear energy on the rheological behaviour of oilwell cement slurries 1759
- H. Hodne, A. Saasen:** The effect of the cement zeta potential and slurry conductivity on the consistency of oilwell cement slurries 1767
- N. Su, H.-Y. Fang, Z.-H. Chen, F.-S. Liu:** Reuse of waste catalysts from petrochemical industries for cement substitution 1773
- L.H. Jiang, V.M. Malhotra:** Reduction in water demand of non-air-entrained concrete incorporating large volumes of flyash 1785
- B. Sioulas, J.G. Sanjayan:** Hydration temperatures in large high-strength concrete columns incorporating slag 1791
- R.J. van Eijk, H.J.H. Brouwers:** Prediction of hydroxyl concentrations in cement pore water using a numerical cement hydration model 1801
- Q. Yang, B. Zhu, S. Zhang, X. Wu:** Properties and applications of magnesia-phosphate cement mortar for rapid repair of concrete 1807
- H. Saito, A. Deguchi:** Leaching tests on different mortars using accelerated electrochemical method 1815
- M. Heikal, H. El-Didamony, M.S. Morsy:** Limestone-filled pozzolanic cement 1827
- M. Heikal:** Effect of temperature on the physico-mechanical and mineralogical properties of Homra pozzolanic cement pastes 1835
- M. Pei, D. Wppang, X. Hu, D. Xu:** Synthesis of sodium sulfanilate-phenol-formaldehyde condensate and its application as a superplasticizer in concrete 1841

## BOOK REVIEW

- F.D. Tamás:** Modernisation and technology upgradation in cement plants; S.N. Ghosh and K. Kumar (Eds.) 1847

## NEWS ITEMS

1849

## EDITORIAL

- S. Bhattacharja, E. Garboczi:** Symposium on the "Transport Properties and Microstructure of Cement-Based Materials," The Materials Research Society, November 29-30, 1999 1851

## PAPERS

- R.A. Livingston:** Fractal nucleation and growth model for the hydration of tricalcium silicate 1853
- O. Bonneau, C. Vernet, M. Moranville, P.-C. Aïtcin:** Characterization of the granular packing and percolation threshold of reactive powder concrete 1861

- M. Paul, F.P. Glasser:** Impact of prolonged warm (85 °C) moist cure on Portland cement paste 1869
- D.M. Roy, W. Jiang, M.R. Silsbee:** Chloride diffusion in ordinary, blended, and alkali-activated cement pastes and its relation to other properties 1879
- M. Castellote, C. Andrade, C. Alonso:** Phenomenological mass-balance-based model of migration tests in stationary conditions: Application to non-steady-state tests 1885
- E. Samson, J. Marchand, J.J. Beaudoin:** Modeling the influence of chemical reactions on the mechanisms of ionic transport in porous materials: An overview 1895
- P. Mohr, W. Hansen, E. Jensen, I. Pane:** Transport properties of concrete pavements with excellent long-term in-service performance 1903
- K. van Breugel, E.A.B. Koenders:** Numerical simulation of hydration-driven moisture transport in bulk and interface paste in hardening concrete 1911
- P. Kalifa, F.-D. Menneteau, D. Quenard:** Spalling and pore pressure in HPC at high temperatures 1915
- B. Zuber, J. Marchand:** Modeling the deterioration of hydrated cement systems exposed to frost action: Part 1. Description of the mathematical model 1929
- K.K. Aligizaki, M.R. de Rooij, D.D. Macdonald:** Analysis of iron oxides accumulating at the interface between aggregates and cement paste 1941
- V. Matte, M. Moranville, F. Adenot, C. Richet, J.M. Torrenti:** Simulated microstructure and transport properties of ultra-high performance cement-based materials 1947
- R. Barbarulo, J. Marchand, K.A. Snyder, S. Prené:** Dimensional analysis of ionic transport problems in hydrated cement systems: Part 1. Theoretical considerations 1955
- S. Catinaud, J.J. Beaudoin, J. Marchand:** Influence of limestone addition on calcium leaching mechanisms in cement-based materials 1961
- C.M. Dry:** Three designs for the internal release of sealants, adhesives, and waterproofing chemicals into concrete to reduce permeability 1969

## COMMUNICATIONS

- S. Wen, D.D.L. Chung:** Damage monitoring of cement paste by electrical resistance measurement 1979
- Y.-I. Yue, G.-Z. Li, X.-S. Xu, Z.-J. Zhao:** Properties and microstructures of plant-fiber-reinforced cement-based composites 1983
- S. Diamond:** The relevance of laboratory studies on delayed ettringite formation to DEF in field concretes 1987
- Q. Yang, S. Zhang, S. Huang, Y. He:** Effect of ground quartz sand on properties of high-strength concrete in the steam-autoclaved curing 1993

## NEWS ITEMS

## CONTENTS INDEX

## AUTHOR INDEX

## KEYWORD INDEX

1999

2003

2021

2025

## AUTHOR INDEX

- |                                   |   |  |
|-----------------------------------|---|--|
| Aalto, H., 22, 375                | Abd El-Razek, M.M., 29, 1819                          | Adenot, F., 22, 489; 26, 1707; 27, 1523, 1581; 28, 847; 30, 83, 1947 |
| Aare, T., 24, 1267                | Abelard, P., 30, 1057                                 | Afridi, M.U.K., 23, 484; 24, 1199, 1492; 25, 271; 27, 1787           |
| Aarre, T., 25, 827                | Abell, A.B., 28, 1695                                 | Agarwal, S., 25, 86, 1257  |
| Abadjiev, P., 26, 1065            | Abo-El-Enein, S.A., 26, 669, 1479; 28, 1157; 29, 1819 | Agarwal, S.K., 24, 291, 527; 25, 86, 1257; 27, 979; 30, 977          |
| Abbas, N.M., 23, 1085             | Abovyan, E.S., 30, 709                                | Aggarwal, L.K., 29, 1541   |
| Abd El-Aleem, S., 26, 1179        | Abou Elfetouh, S.H., 28, 53, 763                      | Aggeli, E., 30, 1073   |
| Abdelalim, A.M.K., 21, 558        | Abou-Zeid, M.N., 25, 605                              | Agioutantis, Z., 30, 715   |
| Abdelgader, H.S., 29, 331         | Acha, M., 22, 869                                     | Agrawal, D.K., 21, 66; 29, 1611                                      |
| Abdel-Jawad, Y., 22, 927; 24, 165 | Acker, P., 25, 1457; 27, 245                          |  |
| Abdelmoula, M., 29, 1705          | Addis, B.J., 24, 975; 25, 1127                        |  |
| Abdel-Rahman, A.G., 30, 371       |   |  |

- Aguado, A., **25**, 1264; **26**, 993; **27**, 1627; **28**, 93, 349, 591, 1223; **29**, 1077
- Agulló, L., **26**, 993; **27**, 1627; **28**, 93
- Agyei, N.M., **30**, 823
- Ahluwalia, S.C., **28**, 481, 867; **29**, 355, 1851, 1857; **30**, 1361
- Ahmad, S., **25**, 165
- Ahmad, S.F., **25**, 969
- Aimin, X., **21**, 1137
- Ait-Aider, H., **25**, 1445
- Aitcin, P.-C., **21**, 844, 917; **23**, 939; **26**, 883; **28**, 687; **29**, 71
- Aïtcin, P.C., **30**, 887, 1349, 1861
- Ait-Mokhtar, A., **27**, 951
- Akazawa, K., **22**, 1216
- Akers, S.A.S., **29**, 201
- Akgün, H., **30**, 281
- Akhras, N.M., **28**, 1275
- Akhter, H., **23**, 833; **30**, 437
- Akiyama, T., **30**, 1113
- Akour, A.M., **29**, 1419
- Aköz, F., **26**, 1287; **27**, 205; **29**, 537, 637; **30**, 1189
- Aköz, T., **25**, 1360
- Alamán, A., **25**, 727
- Alarcón, H., **22**, 736
- Al-Amoudi, O.S.B., **21**, 38, 956, 1183; **23**, 139; **24**, 371
- Alcaide, J., **27**, 1343
- Alcocel, E.G., **27**, 1343, **29**, 1881
- Aldea, C.M., **30**, 465
- Alexander, M.G., **23**, 567; **24**, 975, 1277; **25**, 345, 1127, 1284; **29**, 917
- Alexandridou, C., **25**, 1726
- Al-Gahtani, A.S., **21**, 1035; **24**, 8; **25**, 1543
- Al-Haddad, M., **26**, 1341
- Al-Hussaini, M.J., **22**, 181; **23**, 242
- Aligizaki, K.K., **29**, 273, **30**, 1941
- Ali, M.G., **22**, 79
- Ali, M.M., **24**, 715; **25**, 86, 1257; **27**, 979; **28**, 1585; **30**, 977
- Al-Khaiat, H., **28**, 859; **30**, 259
- Allan, M.L., **23**, 609; **24**, 671; **25**, 511, 1179; **27**, 1875; **30**, 937
- Allen, A.J., **28**, 897
- Almansa, E.M., **29**, 1807
- Almeida, M.F., **30**, 1131
- Almendros, P., **28**, 221
- Al-Musallam, A., **25**, 1543
- Al-Negheimish, A.I., **27**, 267
- Alonso, C., **22**, 869; **25**, 257, 727; **26**, 405; **27**, 1191; **29**, 417, 1249, 1799; **30**, 615, 1047, 1625, 1885
- Al-Qadi, I.L., **28**, 1379
- Al-Qudah, M., **24**, 165
- Al-Saadoun, S.S., **21**, 777; **22**, 79
- Alsayed, S.H., **24**, 1390; **28**, 1405
- Alshamsi, A.M., **23**, 592; **24**, 353; **27**, 1851
- Al-Sugair, F.H., **27**, 267
- Althaus, E., **28**, 567
- Altun, I.A., **29**, 599, 1847
- Alvarez, J.I., **29**, 1061; **30**, 1413
- Al-Zaid, R., **26**, 1341
- Al-Zaid, R.Z., **27**, 267
- Amahjour, F., **28**, 675; **30**, 543
- Amalraj, R.V., **23**, 896
- Ambroise, J., **25**, 933; **27**, 1, 1513; **29**, 171, 261
- Amde, A.W., **30**, 491
- Amiri, O., **27**, 951
- Amjad, M.A., **24**, 1390
- Ammouche, A., **26**, 573; **30**, 25
- Ampadu, K.O., **29**, 585
- Amoura, A., **25**, 933
- Andac, M., **29**, 179
- Andersen, A., **28**, 1489
- Anderson, D., **30**, 437
- Anderson, W.A., **27**, 845
- Andrade, C., **21**, 635; **22**, 869; **23**, 724, 1130; **24**, 380, 1214; **25**, 257, 727, 1138; **26**, 405; **27**, 1191, 1747; **29**, 417, 1249, 1799; **30**, 615, 1047, 1329, 1885
- Andreae, C., **22**, 1161
- Andreu, C.G., **27**, 1343
- Antzutkin, O.N., **29**, 1575; **30**, 1325
- Aono, Y., **30**, 1741
- Arafah, A., **26**, 1341
- Arceo, H.B., **25**, 339
- Argiz, C., **26**, 405
- Aride, J., **27**, 1203
- Arjemandi, M., **27**, 937
- Arjunan, P., **24**, 343; **29**, 1305
- Arliguie, G., **24**, 401; **25**, 1115; **29**, 561
- Armstrong, R.L., **28**, 261, 453
- Arsenault, B., **26**, 1151; **28**, 321
- Artirma, S., **27**, 721; **28**, 737
- Arya, C., **25**, 893, 989; **26**, 345, 851; **28**, 391
- Asavapisit, S., **27**, 1249; **28**, 1639; **29**, 885
- Ash, J.E., **23**, 399, 576
- Asili, M., **27**, 785
- Asgarani, M.K., **29**, 1373
- Aslan, A., **28**, 1101; **29**, 983
- Aspart, A., **28**, 1669
- Asthana, K.K., **29**, 1541
- Atabek, R., **22**, 419
- Atkins, C.P., **26**, 319
- Atkins, M., **21**, 991; **22**, 229, 241, 497; **24**, 563
- Atkinson, A., **30**, 849, 1375
- Atlasi, E.H., **29**, 133
- Attard, M.M., **24**, 139
- Attari, A., **21**, 378
- Atzeni, C., **21**, 251, 455; **23**, 301; **26**, 1381
- Audley, G.J., **25**, 426
- Auer, A., **25**, 1347
- Auer, St., **23**, 422
- Aukett, P.N., **25**, 426
- Ausloos, M., **29**, 209
- Austin, S., **29**, 1067
- Avcular, N., **27**, 1135, 1893
- Avsar, C., **28**, 1519
- Ay, A., **25**, 387
- Ay, N., **30**, 497
- Ayala, J., **30**, 1715
- Ayano, T., **27**, 733
- Ayas, A., **25**, 1610
- Ayers, M.E., **23**, 1480
- Ayora, C., **25**, 1264; **28**, 591, 1223
- Azzabi, M., **26**, 601, 1163
- Babu, K.G., **24**, 277; **25**, 1273; **26**, 465; **30**, 1031
- Bader, C., **23**, 1047
- Badger, S., **30**, 1535
- Bágel', L.', **27**, 1225
- Bágel, L., **28**, 1011
- Baggott, R., **25**, 1512; **26**, 387; **27**, 1155
- Bagosi, S., **28**, 1753; **29**, 479
- Bagur, M.G., **29**, 1749
- Bai, G., **26**, 1109
- Bajza, A., **27**, 1825; **28**, 13
- Bakharev, T., **29**, 113, 1619; **30**, 1367
- Bakke, J.A., **25**, 1775
- Bakula, F., **25**, 71
- Balabani, G., **26**, 761
- Balaguru, P., **30**, 183
- Balaha, M.M., **30**, 371
- Balázs, G.L., **24**, 863
- Balcom, B.J., **28**, 261, 453
- Balek, V., **22**, 459
- Balendran, R.V., **28**, 1725
- Bali, A., **30**, 1559
- Ball, C., **27**, 551; **28**, 1833
- Ball, M.C., **25**, 1815
- Ballatore, E., **27**, 453
- Ballivy, G., **23**, 335
- Balogh, T., **24**, 863
- Balyan, M.K., **30**, 709
- Bamforth, P.B., **29**, 487
- Banba, T., **22**, 381

- Bandopadhyay, S.K., **26**, 325; **28**, 1049  
 Bandyopadhyay, S., **23**, 1185  
 Banfill, P.F.G., **21**, 1148  
 Bang, W.K., **29**, 1791  
 Banthia, N., **21**, 158, 844; **22**, 804; **23**, 863; **26**, 9, 601, 657  
 Banu, Z., **26**, 933  
 Barbarulo, R., **30**, 1955  
 Barclay, S., **23**, 1178  
 Bardy, A., **25**, 1115  
 Bardy, D., **24**, 401  
 Barkakati, P., **24**, 613; **23**, 1185; **28**, 329  
 Barnes, P., **23**, 267; **25**, 639; **30**, 491  
 Baroghel-Bouny, V., **29**, 1225  
 Baronio, G., **26**, 683, 691  
 Barr, B.I.G., **25**, 177, 543; **26**, 63  
 Barrie, P.J., **25**, 1435  
 Barrioulet, M., **21**, 835, 1058  
 Barry, E.F., **28**, 1335; **29**, 899  
 Bartak, J., **21**, 21  
 Bartos, P.J.M., **27**, 1701; **30**, 1299  
 Baruah, A.C.H., **28**, 329  
 Bascoul, A., **23**, 1340; **27**, 345; **29**, 369  
 Baskoca, A., **27**, 721; **28**, 737  
 Basri, H.B., **29**, 619  
 Batchelor, B., **24**, 752; **27**, 963; **29**, 99, 361, 1433  
 Bati, M., **30**, 1073  
 Batic, O.R., **24**, 1073, 1317; **26**, 113, 1579; **28**, 189; **30**, 1407  
 Batis, G., **24**, 1444; **25**, 1805; **30**, 1679  
 Baumbach, H., **24**, 514  
 Bautista, A., **26**, 215, 501, 1525; **28**, 577  
 Baweja, D., **23**, 1418  
 Bayasi, Z., **28**, 115, 961; **29**, 497  
 Bayoumi, T.A., **22**, 311  
 Bayoux, J.P., **23**, 1056  
 Bažant, Z.P., **30**, 419  
 Beaudoin, J.J., **21**, 297, 515, 674, 718, 809, 999; **22**, 23, 27, 551, 597, 631, 689, 833, 845, 981; **23**, 157, 187, 359, 377, 462, 488, 531, 581, 675, 747, 853, 905, 1007, 1016, 1467; **24**, 38, 86, 89, 92, 231, 250, 267, 433, 650, 682, 704, 874, 1015, 1055, 1085, 1428; **25**, 29, 63, 223, 1111, 1295, 1311; **26**, 417, 539, 799, 1151, 1493, 1775; **27**, 23, 1299, 1777; **28**, 321, 341, 1147; **29**, 795, 1085, 1341; **30**, 359, 683, 1465, 1895, 1961  
 Beaulieu, J., **23**, 874  
 Beaupré, D., **29**, 753  
 Bechev, G., **29**, 1635, 1641  
 Beddoe, R.E., **24**, 605  
 Beeldens, A., **30**, 623  
 Behzadi, A., **21**, 911  
 Belaribi, N., **27**, 1429  
 Benaija, E.H., **23**, 1340  
 Benaissa, A., **23**, 663  
 Bengochea, A.L., **28**, 189  
 Benmalek, M.L., **30**, 1559  
 Bennett, D.G., **22**, 497  
 Bensted, J., **21**, 190, 663, 675, 678, 679; **22**, 719; **23**, 486, 489, 493, 743, 986, 993, 1245; **24**, 285, 385, 391, 394, 479, 591, 595, 993; **25**, 221, 240, 426, 1129, 1806, 1811; **26**, 329, 633, 641, 645, 649; **27**, 635, 1291, 1773; **28**, 465, 1191, 1347, 1841; **29**, 797, 967; **30**, 1333, 1507  
 Bentur, A., **23**, 962; **24**, 214; **27**, 525, 1099; **30**, 781, 1701  
 Bentz, D.P., **21**, 325, 1187; **22**, 891; **24**, 25, 1044, 1569; **25**, 790; **28**, 285; **29**, 615, 1663, 1861; **30**, 953, 1121, 1157  
 Bentz, E., **29**, 827  
 Benzazoua, M., **29**, 719  
 Beretka, J., **23**, 1205; **24**, 393; **25**, 113; **26**, 1673  
 Berke, N.S., **27**, 1357  
 Berkay, I., **29**, 637; **30**, 1189  
 Berliner, M., **28**, 231  
 Berliner, R., **27**, 551; **28**, 231, 1833  
 Berner, U.R., **22**, 465  
 Berra, M., **26**, 683, 691  
 Berthaud, Y., **21**, 73, 219, 928; **23**, 1340; **30**, 1597  
 Bertolini, L., **26**, 683, 691; **27**, 1591  
 Bérubé, M.A., **21**, 853, 1069; **24**, 73, 221, 456, 1574, 1579  
 Beyea, S.D., **28**, 261, 453  
 Bhattacharjee, B., **27**, 93; **28**, 749  
 Bhattacharjee, K.N., **25**, 459, 883, 1023  
 Bian, Q., **25**, 1647  
 Biani, N., **26**, 761  
 Bićanić, N., **26**, 761  
 Bigas, J.P., **30**, 1543  
 Bijen, J.M.J.M., **21**, 169, 242, 535, 727, 983; **29**, 281  
 Bijen, J., **23**, 1029  
 Bilodeau, A., **21**, 101; **27**, 1861; **28**, 1555  
 Birnin-Yauri, U.A., **28**, 1713  
 Bing, T., **30**, 117  
 Biricik, H., **29**, 637; **30**, 1189, 1509  
 Bissonnette, B., **25**, 1075; **29**, 1655  
 Bjegovic, D., **25**, 187  
 Black, C.J., **23**, 507  
 Blanc, P., **21**, 368; **22**, 882  
 Blanchart, P., **30**, 1057  
 Blanco, F., **30**, 1715  
 Blanco, M.T., **22**, 793; **24**, 1177; **29**, 1323  
 Blanco Varela, M.T., **23**, 20  
 Blanco-Varela, M.T., **25**, 39, 1131; **26**, 457, 1361; **27**, 777; **28**, 125, 221; **29**, 997, 1673  
 Bland, C.H., **21**, 359, 1191; **25**, 485  
 Blankenhorn, B.D., **29**, 737  
 Blankenhorn, P.R., **24**, 1558; **29**, 737  
 Blatch, S.P., **26**, 319  
 Bleszynski, R.F., **29**, 1915  
 Bocca, P., **27**, 453  
 Boch, Ph., **22**, 369  
 Boch, P., **28**, 1687  
 Boddy, A., **29**, 827  
 Boddy, A.M., **30**, 1139  
 Boisvert, L., **26**, 869  
 Bojadjeva, C., **25**, 685  
 Bomal, Y., **29**, 847  
 Bonavetti, V., **30**, 703  
 Bonavetti, V.L., **24**, 580  
 Bonavita, L., **28**, 19  
 Bonen, D., **22**, 169, 707, 1059; **23**, 541, 749; **24**, 183, 373, 959; **25**, 395, 1423  
 Bonfield, P.W., **29**, 923  
 Bonneau, O., **30**, 1861  
 Bonnet, J.P., **30**, 1057  
 Bontea, D.M., **30**, 651  
 Bonville, P., **26**, 1707  
 Borah, U.C., **23**, 1185  
 Bordoloi, D., **23**, 1185; **24**, 613; **25**, 1095; **28**, 329  
 Börjesson, S., **27**, 1649  
 Borrachero, M.V., **25**, 449, 1469; **26**, 225, 1389; **27**, 1365; **28**, 675; **29**, 87, 1773; **30**, 543  
 Borthakur, P.Ch., **24**, 613  
 Borthakur, P.C., **25**, 1095  
 Borthakur, P.CH., **28**, 329  
 Bothe, J.V., Jr., **23**, 981  
 Bouguerra, A., **28**, 1179; **29**, 339  
 Boukhari, A., **27**, 1203  
 Boulay, C., **24**, 641; **25**, 1123  
 Boumaza, R., **27**, 1513  
 Bouniol, P., **22**, 419; **28**, 1669  
 Bouras, D., **26**, 1473  
 Bourdette, B., **25**, 741  
 Bournazel, J.P., **27**, 1543  
 Bournazel, J.-P., **28**, 251; **29**, 267  
 Bouzoubaa, N., **27**, 1861; **28**, 1555, 1783; **30**, 1037



- Bradbury, M.H., **22**, 439  
 Bradley, M.J., **23**, 1259  
 Brambilla, G., **22**, 331  
 Brandstetr, J., **21**, 101; **28**, 299  
 Brandt, A.M., **25**, 1123  
 Brantervik, K., **21**, 496  
 Breese, M.C., **29**, 923  
 Bremner, T.W., **26**, 781; **28**, 261, 453  
 Breton, D., **23**, 353  
 Breal, E., **21**, 83  
 Breyse, D., **21**, 963; **27**, 761; **30**, 25  
 Brincker, R., **27**, 925  
 Brivot, F., **22**, 941; **23**, 93, 1001  
 Brodersen, B.S., **26**, 1489  
 Brodersen, K., **22**, 405  
 Brodwin, M.E., **21**, 795, 863  
 Brooman, E.W., **23**, 640  
 Brothers, L.E., **25**, 1305; **29**, 1969  
 Brough, A.R., **24**, 813; **30**, 849, 1375  
 Brousseau, R., **21**, 515, 718, 999; **22**, 833; **23**, 157  
 Brouwers, H.J.H., **28**, 815; **30**, 1801  
 Brouxel, M., **23**, 309  
 Brown, D., **22**, 339  
 Brown, J.T., **28**, 411  
 Brown, L.C., **26**, 545  
 Brown, P.W., **21**, 958; **22**, 531, 1192; **23**, 981; **24**, 389; **25**, 417; **27**, 1237; **29**, 1167, 1943; **30**, 233, 411, 1535  
 Brückner, A., **22**, 1161  
 Bucea, L., **23**, 1273; **24**, 203  
 Buchler, P.M., **25**, 1435  
 Budelmann, H., **28**, 1525  
 Buenfeld, N.R., **26**, 1443; **27**, 853; **28**, 665, 777, 939; **29**, 1681; **30**, 775  
 Buil, M., **22**, 489  
 Bukowski, J.M., **24**, 1025; **25**, 147  
 Bushlaibi, A.H., **23**, 592  
 Büyükoztürk, O., **25**, 1011  
 Byars, E.A., **23**, 554  
 Cabiron, J.-L., **29**, 1215  
 Cabrera, J., **30**, 209, 561  
 Cabrillac, R., **28**, 847  
 Cady, P.D., **23**, 1047; **29**, 273  
 Cai, H., **28**, 1281  
 Cai, Y., **30**, 699  
 Cail, K., **29**, 1207  
 Callaghan, I.C., **21**, 663  
 Calloni, G., **29**, 523  
 Calogovic, V., **25**, 1054  
 Camaro, S., **22**, 273  
 Candappa, D.P., **29**, 1977  
 Cánovas, M.F., **29**, 1807  
 Cantin, R., **26**, 1639  
 Cao, C., **30**, 71  
 Cao, H.T., **21**, 316; **22**, 188; **23**, 1273; **24**, 203  
 Cao, W., **29**, 1549  
 Cao, Y., **25**, 627  
 Capmas, A., **23**, 1056  
 Capra, B., **28**, 251  
 Carassiti, F., **27**, 1213  
 Carcassès, M., **30**, 217  
 Carciello, N.R., **22**, 783; **23**, 1409; **25**, 91, 1305  
 Carde, C., **26**, 1257; **27**, 539, 971  
 Carey, J.W., **27**, 1407  
 Cariou, B., **22**, 319  
 Carles-Gibergues, A., **23**, 335, 431; **30**, 1097  
 Carpio, J., **22**, 56  
 Carter, M.A., **29**, 1743  
 Carter, R.E., **21**, 1148  
 Cartledge, F.K., **23**, 833; **30**, 437  
 Casanova, I., **26**, 993; **27**, 1627  
 Castel, A., **29**, 561  
 Castellote, M., **29**, 417, 1799; **30**, 615, 1047, 1885  
 Castro, F., **30**, 1131  
 Castro-Montero, A., **26**, 125  
 Castro, P., **30**, 1047, 1565  
 Catinaud, S., **30**, 1961  
 Caufin, B., **21**, 1111  
 Cazalla, O., **29**, 1749  
 Cazzaniga, E., **22**, 331  
 Çeçen, C., **27**, 165  
 Çelik, T., **26**, 1121  
 Ceng, S.A., **28**, 649  
 Cerny, R., **27**, 415; **30**, 1267  
 Cervigón, C., **25**, 1138  
 Chabannet, M., **27**, 1, 63, 1533; **29**, 171  
 Chai, H.-W., **27**, 1141  
 Chan, G.W., **25**, 1159, 1556; **26**, 551, 557, 817  
 Chan, H.C., **28**, 921; **29**, 1403  
 Chan, S.Y.N., **27**, 279, 1691; **30**, 379, 907  
 Chan, W.W.J., **30**, 865  
 Chan, Y.N., **30**, 247  
 Chanda, S., **28**, 1049  
 Chandra, S., **22**, 515; **24**, 375; **27**, 1613; **28**, 41; **29**, 969  
 Chang, C.T., **25**, 1605  
 Chang, J., **27**, 1085; **30**, 77  
 Chang, J.T., **21**, 795, 863  
 Chang, T.-P., **26**, 181  
 Chaniotakis, E., **27**, 889; **30**, 1679  
 Chanvillard, G., **29**, 1027  
 Chatterjee, A.K., **26**, 1213, 1227  
 Chatterji, S., **21**, 61, 196, 199, 200, 269, 394, 669, 673, 1185; **22**, 190, 525, 609, 774; **23**, 55; **24**, 907, 1010, 1051, 1229, 1567, 1572, 1577; **25**, 51, 299, 929; **26**, 335, 813; **27**, 155, 811, 1451; **28**, 153, 773, 1087, 1837; **29**, 595, 627, 781; **30**, 501, 669, 1005, 1319  
 Chatzopoulou, E., **30**, 715  
 Chaudhary, Z.U., **24**, 1199, 1492; **25**, 271  
 Chauhan, M.S., **25**, 1639  
 Cheeseman, C., **30**, 1641  
 Cheeseman, C.R., **25**, 1435; **27**, 1249; **28**, 1639; **29**, 885  
 Chen, B., **30**, 1495  
 Chen, H., **29**, 423  
 Chen, J.H., **24**, 319  
 Chen, L., **25**, 1417  
 Chen, M., **30**, 973  
 Chen, P., **25**, 465, 491  
 Chen, S.D., **29**, 255  
 Chen, S.-W., **28**, 509  
 Chen, W.-F., **24**, 95; **26**, 611  
 Chen, X., **24**, 1383  
 Chen, Y., **22**, 1130; **25**, 853, 919; **30**, 881, 1381, 1443  
 Chen, Z., **27**, 493; **29**, 1111, 1685, 1689  
 Chen, Z.H., **30**, 1773  
 Cheng, J., **29**, 1611  
 Cheng, L., **30**, 1381  
 Cheng, X., **26**, 955; **27**, 1085; **30**, 77  
 Cheng, Y., **23**, 83  
 Cheng, Y.B., **30**, 1367  
 Cheng, Y.-B., **29**, 113, 1619  
 Cheriaf, M., **29**, 1387  
 Cheyrezy, M., **25**, 1491, 1501; **26**, 93  
 Chiaia, B., **28**, 103  
 Chinchon, J.S., **24**, 923  
 Chinchón, J.S., **25**, 1264; **28**, 381  
 Chinchón, S., **27**, 1343; **28**, 591, 1223; **30**, 1023, 1689  
 Chino, K., **22**, 387  
 Chio, V.A., **24**, 243  
 Chopin, D., **30**, 915  
 Chrisp, T.M., **29**, 377; **30**, 1395  
 Christensen, B.J., **26**, 1325  
 Christo, S., **21**, 863  
 Chui, S.N.C., **29**, 237  
 Chung, C.Y., **29**, 805  
 Chung, D.D.L., **25**, 465, 491, 689, 939, 1391, 1397; **26**, 15, 69, 189, 535, 985, 1007, 1467, 1485, 1499; **27**, 437, 643, 649, 679, 839, 845, 1149, 1313, 1799,



- 1805, 1811, 1829; **28**, 167, 183, 477, 487, 493, 783, 787, 795, 1353, 1373; **29**, 427, 435, 445, 451, 773, 961, 1107, 1117, 1989; **30**, 59, 241, 323, 327, 651, 661, 799, 1175, 1289, 1295, 1305, 1979
- Chye, L.K., **23**, 1289
- Cioffi, R., **21**, 120; **25**, 1803
- Cisse, I.K., **30**, 13
- Claireaux, F., **27**, 1261
- Clamen, G., **28**, 1687
- Clark, B., **26**, 309
- Clark, B.A., **22**, 1170; **29**, 1943; **30**, 233
- Clark, S.M., **25**, 639; **29**, 1099
- Clifton, J.R., **27**, 1553
- Climent-Llorca, M.A., **26**, 1157; **28**, 209
- Climent, M.A., **29**, 893
- Coats, A.M., **26**, 1695; **29**, 1497; **30**, 953
- Cochet, G., **22**, 287, 319
- Cocke, D.L., **23**, 773; **24**, 109, 1153; **25**, 671; **30**, 267
- Cohen, M.D., **21**, 147, 229; **22**, 169, 707, 961; **23**, 104; **24**, 25, 95, 1569; **30**, 117
- Colán-Subauste, J., **29**, 731
- Colantuono, A., **26**, 861
- Colella, D., **27**, 1591
- Coleman, N.J., **27**, 147
- Collepari, M., **25**, 961; **30**, 1389
- Collins, F.G., **28**, 655; **29**, 455, 459, 607, 659; **30**, 791, 1401
- Collins, P., **24**, 424
- Colombet, P., **29**, 1441
- Colston, S.L., **30**, 491
- Commène, J.P., **26**, 573
- Cong, X., **25**, 1237
- Cong, X.-D., **23**, 811, 1065
- Constantiner, D., **24**, 1582
- Cook, R.A., **21**, 1165; **29**, 933
- Córcoles, A., **26**, 1389
- Corsaw, M.J.T., **28**, 1133
- Cotterell, B., **25**, 408
- Coussy, O., **29**, 1225
- Coutaz, L., **27**, 1
- Cripps, J.C., **28**, 1037, 1453; **29**, 1019
- Crossley, N.L., **24**, 1255
- Csetényi, L.J., **22**, 393, 399; **28**, 1753; **29**, 479
- Cui, X., **21**, 1049; **22**, 1
- Cultrone, G., **29**, 1749
- Curcio, F., **28**, 629, 803
- Curlin, D., **23**, 885
- Curtil, L., **23**, 329; **24**, 473
- Cusson, D., **27**, 1261
- Cyr, M., **30**, 1097, 1477
- Dabić, P., **24**, 948; **30**, 693, 1017
- Daemen, J.J.K., **30**, 281
- Daimon, M., **22**, 1216; **25**, 1218; **28**, 1297; **29**, 1791
- Dal Vecchio, S., **26**, 861
- Damidot, D., **22**, 229, 1179; **23**, 221, 1195; **24**, 563; **25**, 22
- D'Antona, P., **29**, 523
- Daoud, O.K., **21**, 1155
- Darvall, P. LeP., **24**, 139
- Darwin, D., **22**, 695; **23**, 754; **24**, 186; **25**, 605
- Dasgupta, R., **28**, 1429
- Daude, G., **26**, 791
- Daugherty, K., **26**, 1131
- Davis, F.L., **27**, 1553
- Davies, J., **25**, 1031
- Dawes, A.C., **22**, 497
- Dawson, J., **21**, 109
- Day, R.A., **28**, 1571
- Day, R.L., **23**, 824, 1389; **24**, 463, 1485; **25**, 15, 1333; **26**, 439; **30**, 51, 607
- Dayal, R., **21**, 441
- de Aguiar, B., **30**, 1131
- de Andrade, W.P., **27**, 1899; **28**, 1195
- DeAngelis, B.A., **28**, 629, 803
- de Barquin, F., **28**, 1179; **29**, 339; **30**, 1559
- De Belie, N., **26**, 1717; **28**, 1621; **30**, 623
- De Blaere, B., **26**, 1717
- de Castellar, M.D., **26**, 1199
- De Cayeux, M.D., **22**, 477
- De Ceukelaire, L., **21**, 563; **22**, 903; **23**, 442
- de Frutos, J., **28**, 1165
- Deguchi, A., **30**, 1815
- Dehghanian, C., **27**, 937
- de Larrard, F., **26**, 283; **28**, 285
- de la Torre López, M.J., **26**, 825
- Delagrave, A., **24**, 1433; **26**, 749, 1831
- Delayo, J.M., **27**, 1581
- del Cura, G., **29**, 1881
- deLhoneux, B., **29**, 201
- Demirbas, A., **22**, 841; **23**, 491; **24**, 601; **25**, 1381, 1610; **26**, 1737; **27**, 1713; **28**, 605, 1101; **29**, 983
- Demsetz, L.A., **24**, 243
- Demura, K., **21**, 309; **23**, 484; **24**, 1199, 1492; **25**, 271; **27**, 1787
- Den, M., **26**, 647
- Deng, D., **26**, 1203; **29**, 1365
- Deng, M., **23**, 1040, 1115, 1397; **24**, 119, 1584; **25**, 440; **26**, 663, 999; **27**, 321
- Deng, Y., **23**, 462
- De Preter, W., **24**, 765
- De O. Madivate, C.M., **29**, 695
- de Rojas, M.I.S., **30**, 209
- de Rooij, M.R., **29**, 281; **30**, 1941
- Desbrieres, J., **23**, 347, 1431
- De Schutter, G., **25**, 593; **29**, 143
- de Silva, P.S., **23**, 627
- de Siqueira Tango, C.E., **28**, 969
- Detwiler, R.J., **21**, 179, 388; **24**, 633; **25**, 627, 790; **29**, 2011
- Detwiller, R.J., **22**, 112
- Devaguptapu, R., **27**, 1569
- de Vera-Almenar, G., **28**, 209
- de Vera, G., **29**, 893
- De Visscher, J., **30**, 1453
- de Vito, B., **23**, 1205
- Dewaele, P.J., **21**, 441
- Dhang, N., **29**, 989; **30**, 593
- Dheilly, R.M., **28**, 1179; **29**, 339
- Dhir, R.K., **21**, 1092; **22**, 35; **23**, 554, 1105, 1443; **24**, 1463; **25**, 197, 1153, 1627; **26**, 1761, 1767; **27**, 825, 1633; **28**, 1209; **29**, 667
- Dhouibi-Hachani, L., **26**, 253
- Diamond, S., **21**, 905; **22**, 67, 678, 1059; **23**, 811; **24**, 1140, 1305; **26**, 3, 427; **28**, 1237; **29**, 1181, 1271, 2013; **30**, 1, 1517, 1987
- Dias, W.P.S., **30**, 1255
- Diaz, G., **22**, 736
- Dickson, C.L., **30**, 1619
- DiCola, M., **29**, 737
- Didry, O., **30**, 25
- Diez, J.M., **25**, 727
- Diez, J.M., **27**, 337, 479
- Diggins, R., **26**, 153
- Di Maio, A., **26**, 113
- Dimitrova, E., **27**, 577; **29**, 3
- Dimopoulos, G., **25**, 477, 955
- Ding, D., **28**, 171
- Ding, J., **25**, 1295, 1311; **26**, 417, 799; **27**, 1299
- Ding, J.-T., **29**, 957
- Ding, X.Z., **25**, 1086
- Ding, Y., **29**, 1827; **30**, 1573
- Dinwoodie, J.M., **29**, 923
- Diouri, A., **27**, 1203
- Divet, L., **28**, 357, 1839, 1843
- Djabarov, N., **29**, 1635, 1641
- Djeridane, S., **22**, 804
- Djuri, M., **28**, 713

- Djuric, M., **22**, 139; **25**, 1490; **26**, 1295  
 Dobson, C.M., **24**, 813  
 Docktor, B., **25**, 658  
 Doehne, E., **30**, 1527  
 Doerr, A., **30**, 411  
 Dohnálek, J., **22**, 459  
 Dolch, W.L., **21**, 750; **30**, 1  
 Dominguez, R., **23**, 20  
 Domone, P., **27**, 1141; **28**, 177  
 Dongxu, L., **30**, 45  
 Donza, H., **30**, 703  
 Dorrego, F., **24**, 728; **25**, 1755; **26**, 841; **30**, 517  
 dos Santos, M.C., **27**, 1899; **28**, 1195  
 Douglas, E., **21**, 101, 523  
 Drábik, M., **27**, 127  
 Drchalová, J., **27**, 415; **30**, 1267  
 Drees, L.R., **29**, 1433  
 Drljaca, J., **25**, 311  
 Drijaca, J.D., **21**, 941; **22**, 571, 937  
 Dron, R., **22**, 941; **23**, 93, 745, 1001  
 Dry, C.M., **28**, 1133; **30**, 1969  
 Du, H., **21**, 355, 509  
 Dubois, M., **30**, 521  
 Duchesne, J., **24**, 73, 221, 456, 1574, 1579; **25**, 1043  
 Duerden, S.L., **23**, 991  
 Duggan, T., **28**, 615  
 Duhot, V., **25**, 1667  
 Dunster, A.M., **24**, 542  
 Durekovic, A., **21**, 1015; **25**, 365; **26**, 761  
 Duszak, S., **27**, 51  
 Duthoit, B., **30**, 301  
 Dutta, D.K., **25**, 1095  
 Duval, R., **28**, 543  
 Dwivedi, M.P., **22**, 121  
 Dyer, T.D., **25**, 1153; **26**, 1767; **27**, 1633; **29**, 667  
 Eaton, H.C., **22**, 589  
 Eber, B., **29**, 545, 651  
 Ebied, E., **24**, 966  
 Ecker, M., **26**, 77  
 Economou, I.G., **30**, 1151  
 Egbuniwe, N., **26**, 1045  
 Eggenberger, U., **29**, 297, 1569  
 Egocheaga Rodriguez, J., **29**, 727  
 Ehrlicher, A., **25**, 1457; **27**, 245  
 Eichhorn, F., **24**, 514  
 Ekberg, C., **27**, 1649  
 Eklind, Å., **23**, 245  
 Eklund, L., **28**, 41; **29**, 969  
 Elert, M., **22**, 477  
 Elghaly, A.E., **23**, 1105  
 El-Aleem, A., **24**, 966  
 El-Attar, M.S., **30**, 7  
 El-Dieb, A.S., **24**, 443, 854; **25**, 1199; **27**, 711, 861  
 El-Didamony, H., **24**, 966; **26**, 1179; **30**, 7, 1827  
 El-Enein, S.A.A., **25**, 1615; **27**, 1307  
 El Hafiane, Y., **30**, 1057  
 El-Hawary, M., **30**, 259  
 El-Hemaly, S.A.S., **21**, 683  
 Elices, M., **30**, 731  
 El-Khatib, J.M., **22**, 1089  
 El-Korch, T., **23**, 618; **25**, 1591  
 Elliott, S., **26**, 1151  
 El-Mohr, M.A.K., **26**, 1767; **27**, 1633  
 Elsen, J., **24**, 1267; **25**, 827  
 El-Shakra, Z.M., **23**, 1455  
 Emanuelson, A., **26**, 1689; **27**, 1167  
 Emrén, A., **27**, 1649  
 Enders, M., **26**, 243  
 Enevoldsen, J.N., **24**, 1373, 1525  
 Eo, S.-H., **27**, 1719; **28**, 1761  
 Erbil, M., **27**, 1271  
 Erdem, E., **23**, 115  
 Enders, M., **25**, 1369  
 Erdogan, Y., **22**, 841; **23**, 491; **24**, 601  
 Erdoğan, Y., **28**, 605  
 Erdoğan, K., **28**, 1217  
 Erdoğan, Ş., **28**, 1595  
 Erdoğan, S., **30**, 767  
 Erdoğan, K., **29**, 743  
 Ergun, M., **26**, 1593  
 Escadeillas, G., **27**, 345; **29**, 369  
 Escalante, J.I., **29**, 623  
 Escalante-García, J.I., **28**, 1245, 1259; **29**, 1999  
 Escudero, M.L., **25**, 376  
 Eskander, S.B., **22**, 311  
 Espagne, M., **24**, 62; **29**, 687  
 Esser, G., **23**, 700  
 Evju, C., **29**, 1513  
 Evrard, O., **28**, 1605; **29**, 63, 1705  
 Ewertson, C., **23**, 683  
 Eylands, K.E., **25**, 658  
 Eze-Uzomaka, O.J., **26**, 1045  
 Faber, K.T., **29**, 397  
 Fairhall, G.A., **22**, 293, 325  
 Fan, M.Z., **29**, 923  
 Fan, Y., **29**, 467  
 Fang, H.Y., **30**, 1773  
 Fang, Y., **26**, 41  
 Farrell, C.W., **21**, 489  
 Faucon, P., **26**, 1707; **27**, 1581; **28**, 847  
 Feeney, M.A., **23**, 1047  
 Fei, L., **21**, 355, 509  
 Feldman, R.F., **21**, 297, 674, 809; **22**, 27; **25**, 1556; **26**, 817  
 Feliu, S., **23**, 33; **25**, 257; **26**, 501  
 Felix, B., **26**, 1707  
 Feng, N., **27**, 1691; **30**, 989  
 Feng, N.Q., **27**, 279; **28**, 7  
 Feng, X., **27**, 407, 1439  
 Feng, X., **24**, 1311; **26**, 955  
 Fentiman, C.H., **23**, 267  
 Fereig, S., **30**, 259  
 Feret, B., **29**, 1627  
 Feret, C.F., **29**, 1627  
 Fernández-Carrasco, L., **29**, 1697  
 Fernández-Jiménez, A., **27**, 359; **29**, 1313  
 Ferraris, C.F., **27**, 747, 1553  
 Fiaud, C., **22**, 56  
 Filliatre, C., **26**, 791  
 Fisand, Lj., **25**, 1490  
 Fokwa, D., **21**, 928  
 Folliard, K.J., **24**, 424; **27**, 1357  
 Ford, S.J., **28**, 1737  
 Forsling, W., **29**, 1575; **30**, 1325  
 Foulkes, F.R., **29**, 873  
 Fournier, B., **21**, 853, 1069  
 Fournier, J., **28**, 321  
 Fowler, G., **27**, 1249  
 Fragoulis, D., **27**, 889  
 Francois, M., **29**, 63, 1705, 1937  
 François, M., **28**, 1605; **30**, 175, 307  
 Francois, R., **22**, 159; **24**, 401; **25**, 1115  
 François, R., **26**, 1257; **27**, 539, 971; **28**, 947; **29**, 561  
 Franc, O., **28**, 947  
 Frantzis, P., **26**, 387; **27**, 1155  
 Freidin, C., **26**, 1683; **28**, 829; **29**, 1713  
 Frens, G., **29**, 281  
 Frey, R., **24**, 863  
 Frias, M., **21**, 709; **23**, 46; **24**, 533, 728; **25**, 433  
 Frias, M., **26**, 203, 331; **27**, 619; **29**, 945; **30**, 209, 561  
 Fried, A., **28**, 1417  
 Frigione, G., **21**, 120; **24**, 483; **25**, 1121, 1803; **28**, 19  
 Frignani, A., **30**, 635  
 Front, K., **30**, 1263  
 Frouin, L., **25**, 1491  
 Frt'álová, D.M., **26**, 1727  
 Ftikos, C., **28**, 995; **30**, 1731  
 Ftikos, Ch., **21**, 655, 1129; **23**, 1268; **24**, 49; **25**, 721; **27**, 917  
 Fu, X., **25**, 491, 689, 1391, 1397; **26**, 15, 69, 189, 535, 985, 1007, 1467, 1485, 1499; **27**, 643, 679, 839, 845, 983, 1313, 1799, 1805,

- 1811; **28**, 167, 183, 487, 783, 787, 795; **30**, 645, 1239
- Fu, Y., **24**, 38, 86, 89, 92, 231, 267, 682, 704, 1015, 1055, 1085, 1428; **25**, 29, 63, 223, 1295, 1311; **26**, 417, 799, 1493; **27**, 1299
- Fuhr, C., **25**, 809
- Fukuda, K., **23**, 599, 1078; **24**, 497; **28**, 1105; **29**, 503
- Fukuda, L., **25**, 835, 863
- Fukunda, K., **28**, 1141
- Futian, L., **30**, 77
- Gabrisová, A., **21**, 1023
- Gabrovsek, R., **23**, 321
- Gabrovšek, R., **29**, 441; **30**, 1709
- Gacel, J.-N., **29**, 267
- Gadala-Maria, F., **30**, 809
- Gadayev, A., **29**, 187
- Gagne, R., **21**, 844
- Gaidardzhiev, S., **29**, 3
- Galal, A.F., **28**, 1157
- Gali, S., **24**, 923
- Galí, S., **28**, 381; **30**, 1023
- Gáliková, L., **27**, 127
- Gallé, C., **30**, 521
- Gallias, J.L., **30**, 1543
- Gallone, G., **30**, 923
- Ganesh Babu, K., **30**, 1031
- Gangadhara Rao, M.V.B.B., **28**, 841
- Gao, F.-L., **27**, 883
- Gao, Q.-Y., **21**, 471
- Gao, X.F., **29**, 805
- Garboczi, E.J., **21**, 325, 396, 1187; **22**, 891; **24**, 25, 1569; **25**, 790; **27**, 495, 1553, 1603; **29**, 1663; **30**, 585
- Garcés, P., **27**, 1343; **29**, 1881; **30**, 1689
- García Alcocel, E., **30**, 1689
- García Casado, P.J., **29**, 1061; **30**, 1413
- García, F.G., **24**, 776; **26**, 327
- García, P., **30**, 1715; **26**, 327
- García, F. González, **25**, 1103
- García Iglesias, J., **29**, 727
- García, N., **21**, 709; **23**, 46; **24**, 533
- García, S., **22**, 793; **24**, 1177; **25**, 1131
- García-Álvarez, V.O., **28**, 349
- Garg, M., **23**, 213; **25**, 332, 752; **26**, 449; **27**, 947; **29**, 309; **30**, 571
- Gartner, E.M., **27**, 665; **28**, 469; **30**, 817
- Gauthier, C., **28**, 1687
- Gayo-Moncó, E., **28**, 1165
- Gaze, M.E., **27**, 259
- Gégout, P., **21**, 368
- Gégout, P., **22**, 235, 259, 451, 882
- Gehrke, M., **28**, 1525
- Genç, H., **22**, 841; **23**, 491; **24**, 601; **27**, 1713
- Genescá, J., **30**, 1565
- Georgali, B., **25**, 1726; **28**, 995
- Georgiades, A., **21**, 655, 1129
- Gérard, B., **27**, 761; **30**, 37
- Gessner, W., **23**, 1056
- Gettu, R., **28**, 93, 349, 1325
- Ghattas, N.K., **22**, 311
- Ghio, V.A., **24**, 243
- Ghorab, H.Y., **21**, 558; **28**, 53, 763
- Ghosh, S.N., **23**, 41; **26**, 325; **28**, 1049
- Gielly, J., **23**, 329
- Gifford, P.M., **26**, 21
- Gilboy, W.B., **27**, 1681
- Gill, J.P., **25**, 197
- Gill, P.J., **27**, 1561
- Gillott, J.E., **21**, 647; **22**, 193; **23**, 973; **26**, 21; **29**, 323
- Giménez, S., **22**, 793; **24**, 1177; **25**, 1131
- Gjerdet, N.R., **29**, 645
- Gjerv, O.E., **21**, 179, 388, 800, 1006; **22**, 47; **24**, 1423, 1534; **25**, 276, 1535; **26**, 355, 907
- Glass, G.K., **26**, 1443; **28**, 939; **29**, 1681
- Glasser, F.P., **21**, 765, 991; **22**, 201, 229, 241, 497, 663, 1179; **23**, 221, 627, 785, 1195, 1380; **24**, 313, 563; **25**, 22, 339; **26**, 1695; **27**, 215; **28**, 1511, 1713; **29**, 179, 861, 1497, 1505, 1893; **30**, 953, 1619, 1869
- Glavchev, I., **25**, 685
- Gleize, P., **30**, 1609
- Glodic, S., **25**, 311, 314
- Glodic, S.D., **22**, 571, 937
- Godard, P., **29**, 847
- Goguel, R., **25**, 841
- Goguel, R.L., **23**, 59, 283; **30**, 1105
- Goldman, A., **23**, 962; **24**, 95
- Gollop, R.S., **22**, 1027; **24**, 1347; **25**, 1581, 1814; **26**, 139, 1013, 1029
- Gomes, S., **28**, 1605; **29**, 1705; **30**, 175
- Gong, D.A., **30**, 1013
- Goñi, S., **21**, 635; **24**, 1403; **27**, 515; **29**, 1753, 2005; **30**, 553, 1231
- González, C., **29**, 417
- González, J.A., **23**, 33, 368, 1130; **25**, 257; **26**, 215, 501, 1525; **28**, 577
- González, M.A., **27**, 1061; **28**, 1655
- González-López, E., **26**, 225; **27**, 1365
- Gopal, S., **24**, 715
- Gopalan, M.K., **21**, 1103; **26**, 1189
- Gopalaratnam, V.S., **23**, 1455
- Goual, M.S., **30**, 1559
- Gospodinov, P.N., **29**, 1591
- Goswami, G., **21**, 1176; **25**, 1117; **26**, 1057
- Goto, S., **22**, 1216
- Gowripalan, N., **28**, 1119; **30**, 725
- Grabiec, A.M., **29**, 699
- Graham, I.J., **30**, 1105
- Gran, H.C., **25**, 1063, 1775; **27**, 1319; **30**, 535
- Grandet, J., **23**, 335, 431; **26**, 253
- Granizo, M.L., **29**, 997
- Grattan-Bellew, P.E., **28**, 261, 453, 1147; **29**, 795 **30**, 665
- Green, D.P., **28**, 453
- Green, K.M., **29**, 1743
- Grezes-Besset, R., **21**, 575
- Grigoriadis, G., **30**, 1679
- Grimmer, A.R., **23**, 169
- Gross, W., **25**, 209
- Groves, G.W., **21**, 201; **22**, 1001; **23**, 131, 999; **24**, 813, 1191
- Gruber, K.A., **30**, 339
- Gruszcinski, E., **23**, 981
- Grutzeck, M.W., **29**, 997, 1323
- Grzeszyk, S., **27**, 907; **30**, 1263
- Gu, P., **22**, 833; **23**, 157, 359, 531, 581, 675, 853, 1007; **24**, 38, 86, 89, 92, 231, 267, 433, 682, 704, 1015, 1055, 1085, 1428; **25**, 29, 63, 223, 1111; **26**, 539, 1151, 1775; **27**, 23; **28**, 321, 341
- Guan, Y., **29**, 631
- Gudmundsson, G., **29**, 1289
- Guerrero, A., **27**, 515; **29**, 1753; **30**, 553, 1231
- Guerrini, G.L., **30**, 923
- Guilhemat, R., **26**, 791
- Guillabert, B., **26**, 791
- Guinea, G.V., **30**, 731
- Guirado, F., **24**, 923; **25**, 1264; **28**, 381, 591, 1223; **30**, 1023
- Guiraud, H., **26**, 427
- Gülec, A., **27**, 227
- Günçan, N.F., **25**, 1385
- Guo, H., **24**, 1111, 1327
- Guo, X.H., **29**, 1055
- Guo, Z., **29**, 1487
- Gupta, A.P., **29**, 989; **30**, 593
- Gupta, S., **23**, 254
- Guslicov, G., **29**, 9
- Guthrie, G.D. Jr., **27**, 1407
- Gutti, C.S., **26**, 1083

- Habita, M.F., **24**, 473  
Hachani, L., **22**, 56  
Haddad, R., **22**, 927  
Haddad, R.H., **28**, 1379; **29**, 1419  
Hadley, D.W., **30**, 1  
Haecker, C.J., **29**, 615, 1663  
Hafez, N., **27**, 1919  
Häkkinen, T., **23**, 407, 518  
Halamickova, P., **25**, 790  
Halbiniak, J., **30**, 579  
Haldeou, K., **25**, 948  
Hall, C., **30**, 491  
Hall, M.G., **23**, 399  
Hamilton, I.W., **29**, 55  
Hammad, A.M., **23**, 7; **24**, 325; **26**, 1245  
Hampton, J.H.D., **23**, 1317  
Han, J., **30**, 827  
Han, S., **26**, 663, 999  
Han, S.F., **23**, 1040  
Hand, R.J., **24**, 885; **25**, 225  
Handoo, S.K., **24**, 715; **25**, 86, 1257; **27**, 979; **30**, 977  
Hanecka, K., **27**, 589  
Hanehara, S., **22**, 1115; **25**, 353; **26**, 101; **27**, 37, 1453; **29**, 1159; **30**, 197  
Hanna, G.B., **26**, 669, 1479; **27**, 1307  
Hanna, R.A., **25**, 1435, 1615  
Hannant, D.J., **27**, 1681; **28**, 1809  
Hansen, E., **29**, 1513  
Hansen, E.W., **27**, 1319; **30**, 535  
Hansen, K.K., **30**, 1157  
Hansen, P.F., **29**, 567, 1497, 1505  
Hansen, S., **26**, 1689; **27**, 1167; **29**, 679, 1513  
Hansen, W., **27**, 925; **30**, 1903  
Hansson, C.M., **23**, 1141; **24**, 1373, 1525; **26**, 165, 267, 545, 1095; **28**, 1775; **29**, 1555, 1561, 1583  
Hansson, I.L.H., **23**, 1141  
Haque, M.N., **21**, 953, 1103; **25**, 531; **28**, 859, 1445; **29**, 1835; **30**, 835  
Harada, H., **28**, 1297  
Haranczyk, H., **21**, 391  
Harchand, K.S., **21**, 484  
Härdtl, R., **29**, 545, 651, 1949, 1959  
Harmuth, H., **25**, 497; **28**, 811  
Harries, K.A., **30**, 809  
Hartmann, T., **29**, 1359  
Hartshorn, S.A., **29**, 1331  
Harutyunyan, V.S., **30**, 709  
Harvey, B., **28**, 321  
Hasegawa, M., **25**, 1191; **27**, 1393  
Hassanali, M., **23**, 122  
Hassett, D.J., **25**, 658  
Häußler, F., **24**, 514  
Hauser, A., **29**, 297, 1569  
Hausermann, D., **23**, 267  
Havanagi, V.G., **29**, 673  
Havlica, J., **21**, 1023; **22**, 671; **23**, 294, 693; **28**, 299  
Hay, J.C., **28**, 1429  
He, C., **25**, 1691  
He, J.-Y., **29**, 1875  
He, Y., **30**, 1993  
He, Z.S., **27**, 279  
Hearn, N., **21**, 257; **22**, 970; **24**, 633  
Hegde, S.B., **26**, 397  
Heidemann, D., **23**, 169  
Heikal, M., **30**, 1827, 1835  
Heiskanen, K.A., **21**, 625  
Hekal, E.E., **29**, 1535  
Helbling, A.K., **29**, 855  
Helmy, I.M., **26**, 1179  
Helsing Atlassi, E., **28**, 161  
Hempel, R., **23**, 453  
Hempel, S., **23**, 453  
Henderson, E., **26**, 1689  
Herald, S.E., **23**, 1047  
Heren, Z., **26**, 701; **27**, 805; **29**, 777; **30**, 1615  
Hernandez, J.F., **30**, 1597  
Hernández, M.S., **27**, 515  
Herrero, E., **30**, 517  
Herwig, K.W., **28**, 231  
Hess, T.R., **23**, 773; **24**, 109, 1153; **25**, 671  
Hewlett, P.C., **25**, 1153; **29**, 667  
Hillerborg, A., **25**, 702  
Hill, R., **28**, 1479; **26**, 1131  
Hill, R.L., **27**, 193  
Hillier, S.R., **29**, 515  
Hills, C.D., **22**, 822; **23**, 196; **24**, 707; **25**, 1435  
Hime, W.G., **21**, 951; **24**, 797, 798; **28**, 151; **29**, 789; **30**, 163  
Hinczak, I., **28**, 1571  
Hirao, H., **26**, 101  
Hix, G.B., **27**, 127  
Ho, D.W.S., **21**, 1103; **24**, 139  
Hobbs, D.W., **23**, 495; **29**, 1995; **30**, 529  
Hodne, H., **30**, 1759, 1767  
Hoff, W.D., **29**, 1743  
Höglund, L.O., **22**, 217  
Holden, T.M., **30**, 191  
Holland, T.R., **22**, 247  
Holloway, M., **30**, 1375  
Holmes, R.G.G., **22**, 339  
Hong, D., **25**, 440; **26**, 647  
Hong, K., **29**, 1379; **30**, 1199  
Hong, S.-S., **29**, 215, 223  
Hong, S.Y., **29**, 1893  
Hong, Z., **22**, 695; **23**, 754; **24**, 186  
Hoorelbeke, J.M., **22**, 419  
Hooton, R.D., **22**, 949, 970; **23**, 951; **24**, 443, 854; **25**, 1199; **26**, 1239; **29**, 827, 1129, 1239, 1379; **30**, 1139, 1199, 1215  
Hope, B.B., **24**, 1373, 1525; **26**, 165, 267, 545, 771, 1095; **28**, 1775; **29**, 1555, 1561, 1583  
Hopkins, D.S., **29**, 1207  
Hornain, H., **25**, 1667, 1781; **26**, 427, 573, 1555; **30**, 25  
Hosková, S., **27**, 415  
Hossain, M.M., **24**, 303, 913; **26**, 49  
Hosten, C., **28**, 1519  
Hou, H.-B., **21**, 471  
Hou, J., **27**, 649, 679  
Hou, W., **30**, 645, 1239  
Hou, X., **29**, 1103  
Houst, V.F., **24**, 1165  
Hover, K.C., **21**, 489, 1165; **22**, 653; **29**, 933  
Hsu, K.C., **29**, 255  
Hu, C., **26**, 283  
Hu, J., **29**, 1549  
Hu, S., **24**, 1509; **29**, 1013  
Hu, X., **21**, 1118  
Hu, X.Z., **22**, 559  
Hu, Y.L., **23**, 1040  
Hua, C., **25**, 1457  
Huang, R., **26**, 83, 1567  
Hubbard, F.H., **25**, 1627  
Huber, C.O., **26**, 1489  
Hudec, P.P., **25**, 1225  
Hudson, S., **25**, 1103  
Hughes, D.C., **24**, 1255  
Hower, J.C., **27**, 193; **28**, 1479  
Hu, X., **30**, 1841  
Hu, Y., **30**, 1593  
Hua, C., **27**, 245  
Huang, R., **28**, 1071  
Huang, S., **30**, 1313, 1993  
Huang, W., **28**, 635  
Huang, W.-H., **27**, 395  
Humbert, B., **30**, 307  
Hunter, G., **27**, 501  
Huo, M., **26**, 1753; **27**, 1293  
Huovinen, S., **23**, 69  
Hussein, G., **30**, 731  
Hussain, S.E., **21**, 777, 1035; **23**, 1357; **24**, 8; **25**, 1543  
Hutchison, R.G., **21**, 795  
Hwang, C.H., **29**, 255  
Hwang, C.-L., **21**, 410



- Iacovou, M., **25**, 1246  
 Ibrahim, A.J., **21**, 345  
 Icbudak, H., **23**, 152  
 Ichikawa, M., **23**, 933; **24**, 1092; **26**, 1801; **27**, 1123  
 Idorn, G.M., **22**, 1039; **27**, 1625; **29**, 793  
 Igarashi, S., **24**, 695; **30**, 943, 1701  
 Ihekweba, N.M., **26**, 165, 267, 771, 1095  
 Ikabata, T., **30**, 1113  
 Ikeda, K., **24**, 1133; **26**, 743; **27**, 657  
 Ikeda, S., **24**, 1092  
 Ikpong, A.A., **23**, 387  
 Ilić, M., **28**, 713, 1545  
 Imura, T., **25**, 835  
 Inoue, Y., **24**, 1133  
 Inozemtsev, U.P., **25**, 231  
 Iob, A., **23**, 1085  
 Ipatti, A., **22**, 281, 375  
 Iqbal, M.Z., **23**, 484; **24**, 1199, 1492; **25**, 271; **27**, 1787  
 Irassar, E.F., **24**, 580; **26**, 113, 1285; **27**, 1061; **28**, 1655; **30**, 703, 831  
 Ishida, H., **25**, 243, 249  
 Ishimori, H., **25**, 803  
 Isikawa, Y., **29**, 611  
 Ismail, M.R., **21**, 683  
 Isojima, Y., **28**, 1201; **29**, 37  
 Issa, M.A., **23**, 7; **24**, 325; **26**, 1245  
 Isu, N., **25**, 243, 249  
 Ito, S., **22**, 6; **23**, 1078; **24**, 497; **25**, 835, 863; **28**, 1141  
 Ivanov, Ya.P., **23**, 803  
 Ivanusec, I., **26**, 153  
 Ivey, D.G., **26**, 1369  
 Iyengar, L., **25**, 1639  
 Iyer, R.S., **25**, 1403; **29**, 765  
 Izumi, M., **21**, 545  
 Jacobsen, S., **25**, 1775, 1781; **26**, 55, 869, 919  
 Jacques, S.D.M., **30**, 491  
 Jacquin, M., **22**, 369  
 Jacquinet, J.F., **26**, 1707; **27**, 1581; **28**, 847  
 Jadrijevic, A., **23**, 1307  
 Jäger, R.G., **23**, 700, 41, 239  
 Jain, N.K., **23**, 41, 239  
 Jakobsen, N.N., **24**, 593  
 Jakobsen, U.H., **22**, 1148; **26**, 309  
 Janakiraman, L.K., **28**, 1093  
 Janotka, I., **26**, 1727  
 Jansen, D.C., **27**, 381  
 Jarosinski, A., **24**, 99  
 Jaturapitakkul, C., **30**, 1209  
 Jau, W.-C., **28**, 1363  
 Jaubertie, R., **26**, 1335  
 Jeary, A.P., **28**, 1725  
 Jeknavorian, A.A., **28**, 1335; **29**, 799, 899  
 Jenkins, C.H., **30**, 391, 403  
 Jennings, H.M., **21**, 795; **24**, 841; **26**, 593, 1325; **27**, 1603; **28**, 231, 897, 1467; **29**, 159, 1491; **30**, 101, 885, 1339  
 Jensen, A.D., **21**, 61  
 Jensen, E., **30**, 1903  
 Jensen, O.M., **25**, 157; **26**, 1695; **29**, 567, 1497, 1505, 1663; **30**, 953  
 Ji, X., **27**, 1691  
 Jia, Z., **26**, 125  
 Jiang, L., **29**, 631; **30**, 699  
 Jiang, L.H., **30**, 1785  
 Jiang, S., **30**, 887  
 Jiang, S.P., **25**, 779; **26**, 491; **29**, 71  
 Jiang, W., **27**, 1501; **30**, 1879  
 Jin, Q., **26**, 999; **27**, 107  
 Jin, Z., **28**, 309  
 Joeke, I., **24**, 987; **28**, 75, 877; **29**, 747; **30**, 1421  
 Johannesson, B.F., **29**, 1261  
 Johansen, V., **22**, 1148  
 Johansson, K., **29**, 1575; **30**, 1325  
 Johnson, D.L., **29**, 241  
 Johnson, T.J., **24**, 959  
 Jolicoeur, C., **23**, 939; **24**, 433; **30**, 683, 887  
 Jolin, M., **29**, 753  
 Jones, A., **26**, 1537  
 Jones, M.R., **21**, 1092; **22**, 35; **23**, 1105, 1443; **25**, 197; **26**, 1761; **27**, 825  
 Jones, S.C., **30**, 437  
 Jorda, M., **28**, 847  
 Josa, A., **29**, 1077  
 Jovanić, P., **28**, 1545  
 Jun, C., **30**, 77  
 Jupe, A.C., **30**, 491  
 Jurek, K., **30**, 1267  
 Justnes, H., **25**, 1766  
 Kačuić, V., **30**, 1709  
 Kada-Benameur, H., **30**, 301  
 Kadri, E.H., **28**, 543  
 Kakali, G., **23**, 651; **25**, 79, 948; **26**, 1473; **27**, 673; **28**, 335, 1513; **30**, 1073  
 Kalifa, P., **30**, 1915  
 Kalogridis, D., **28**, 995; **30**, 1731  
 Kaloidas, V., **24**, 1444; **25**, 1805; **28**, 995  
 Kamenic, N., **24**, 721, 931  
 Kamaswara Rao, C.V.S., **25**, 1, 57  
 Kameswara Rao, C.V.S., **24**, 1237  
 Kanaya, M., **27**, 1123  
 Kaniraj, S.R., **29**, 673  
 Kanna, V., **28**, 1467  
 Kapicková, O., **27**, 415  
 Kara-Ali, R., **30**, 1543  
 Karr, A.F., **27**, 381  
 Karlioglu, S., **25**, 1381, 1610  
 Kasai, T., **25**, 288  
 Kasselouri, V., **25**, 477, 721, 955, 1726; **27**, 917  
 Katyal, N.K., **28**, 481, 867; **29**, 355, 1851, 1857; **30**, 1361  
 Katz, A., **24**, 214; **28**, 197  
 Katz, R.N., **23**, 618  
 Kaucic, V., **25**, 71  
 Kawamura, M., **21**, 137; **22**, 525, 609, 774; **23**, 55, 925; **24**, 361, 621, 695; **25**, 759; **26**, 1809; **27**, 29; **29**, 585; **30**, 943  
 Kawano, T., **29**, 121  
 Kayali, O., **28**, 1445; **29**, 1835  
 Kayyali, O.A., **21**, 953; **25**, 531  
 Kazandjiev, R.F., **29**, 1591  
 Keddam, M., **27**, 1191  
 Kendall, K., **29**, 1693  
 Kendrick, D.A., **28**, 1537  
 Kendrick, D.ap., **24**, 542  
 Kerrick, D.M., **22**, 949  
 Kertesz, C.J., **22**, 273  
 Kessler, K., **24**, 1558; **29**, 737  
 Ketcham, K.W., **25**, 605  
 Khalil, K.A., **30**, 7  
 Khan, M.I., **30**, 1225  
 Khan, M.S., **21**, 671; **23**, 1480  
 Khangaonkar, P.R., **22**, 577  
 Khatib, J.M., **25**, 999, 1567; **26**, 1537, 1545; **27**, 137, 697; **28**, 83  
 Khatri, R.P., **25**, 209; **27**, 1179  
 Khayat, K.H., **25**, 395  
 Khelidj, A., **29**, 577; **30**, 915  
 Kiatos, D., **24**, 49  
 Kiattikomol, K., **30**, 1209  
 Kikkiniades, E.S., **30**, 1151  
 Kikuchi, M., **22**, 387  
 Kiliçkale, F.M., **27**, 1659, 1911  
 Kim, B.G., **30**, 887  
 Kim, B.-G., **29**, 71  
 Kim, C.E., **29**, 231  
 Kim, D.-S., **29**, 223  
 Kim, J.-H., **27**, 171; **29**, 407  
 Kim, J.-K., **26**, 1513; **27**, 1719; **28**, 985, 1761; **29**, 705, 1921  
 Kim, K.I., **29**, 231



- Kim, P.J., **29**, 201  
 Kim, T.-J., **28**, 955  
 Kim, Y.-Y., **26**, 1513; **29**, 705  
 Kindess, A., **21**, 991  
 Kindness, A., **22**, 229, 241, 497, 663; **24**, 563; **27**, 215; **29**, 861  
 Kirkpatrick, R.J., **23**, 811, 1065; **25**, 1237  
 Kishar, E.A., **28**, 53, 763; **29**, 1535  
 Kishimoto, K., **26**, 743  
 Kittl, P., **22**, 736  
 Kjellsen, K.O., **21**, 179, 388; **22**, 112; **26**, 295, 593; **28**, 161; **29**, 133; **30**, 1323  
 Klečka, T., **30**, 1267  
 Klich, I., **29**, 1433  
 Klimesch, D.S., **26**, 1399; **27**, 1073; **28**, 1109, 1309, 1317  
 Klink, S.A., **22**, 761  
 Klyusov, A.A., **24**, 127  
 Knight, J., **28**, 1639; **30**, 1641  
 Knöfel, D., **21**, 127, 952, 953; **23**, 700; **24**, 801; **25**, 809; **29**, 545, 651, 1949, 1959  
 Knudsen, T., **21**, 198  
 Ko, K., **26**, 363  
 Kobayashi, K., **21**, 273, 309, 676; **24**, 55  
 Kobayashi, T., **25**, 1191; **27**, 1393; **29**, 121  
 Kodess, B., **29**, 187  
 Koe, L., **22**, 822  
 Koenders, E.A.B., **27**, 1489; **30**, 1911  
 Kohno, K., **29**, 611  
 Koishi, M., **28**, 63; **29**, 553  
 Koizumi, K., **30**, 1435  
 Kolakowski, K., **24**, 765  
 Kolay, P.K., **28**, 841  
 Kolev, K., **29**, 1635  
 Kolláth, B., **26**, 1843  
 Kolli, V.G., **30**, 809  
 Komarneni, S., **21**, 83; **24**, 573; **25**, 417  
 Komatsu, S., **27**, 29  
 Komukai, Y., **23**, 933; **24**, 1092  
 Konecny, L., **23**, 1223  
 Koral, S., **25**, 1360; **26**, 1287; **27**, 205; **29**, 537  
 Korhonen, C.J., **30**, 191  
 Koronhályová, O., **27**, 589  
 Kościelski, S., **30**, 931  
 Kosmac, T., **23**, 1  
 Kostadinovic, A., **25**, 311, 314  
 Kostadinovic, A.M., **21**, 941; **22**, 571, 937; **25**, 311, 314  
 Köster, H., **21**, 975  
 Kostogloudis, G.C., **28**, 995; **30**, 1731  
 Kota, H.R., **29**, 1575; **30**, 1325  
 Kotkata, M.F., **25**, 1615; **26**, 669, 1479  
 Kotsovos, M.D., **30**, 153  
 Kouloumbi, N., **24**, 1444; **25**, 1805  
 Kouznetsova, T.V., **27**, 303, 501  
 Kovler, K., **28**, 423, 523; **30**, 1701  
 Kozanková, J., **24**, 413  
 Krishnamoorthy, S., **28**, 749  
 Krishnan, S., **23**, 792  
 Krivenko, P.V., **28**, 1289  
 Krolo, P., **29**, 819, 2017; **30**, 145, 333, 833, 1335  
 Kronlöf, A., **25**, 1747  
 Krstic, V., **25**, 187  
 Krstulovic, P., **24**, 721, 931  
 Krstulovic, R., **24**, 743, 948; **29**, 819, 2017  
 Krstulović, R., **30**, 145, 333, 693, 833, 1017, 1335, 1655  
 Kubel, F., **29**, 1937  
 Kubo, H.R., **30**, 943  
 Kudryavtsev, A.B., **27**, 303, 501  
 Kukacka, L.E., **24**, 671; **25**, 511  
 Kumar, A., **24**, 343  
 Kumar, R., **27**, 93  
 Kumar, S., **23**, 254; **24**, 1237; **25**, 1, 57; **30**, 345  
 Kumar, S.G., **23**, 254  
 Kumar, V.S.R., **30**, 1031  
 Kurbetci, Š., **28**, 1595  
 Kurbus, B., **23**, 321  
 Kurdowski, W., **27**, 51  
 Kuroda, M., **30**, 253  
 Kurtis, K.E., **28**, 411; **30**, 817  
 Kurtz, S., **30**, 183  
 Kurumada, N., **30**, 1113  
 Kusterle, W., **29**, 1827; **30**, 1573  
 Kuttly, K.G.J., **22**, 577  
 Kuttly, T.R.N., **28**, 1393; **29**, 1699  
 Kuzel, H.-J., **21**, 885; **23**, 422; **25**, 1347; **26**, 77  
 Kwan, A.K.H., **28**, 921; **29**, 1403; **30**, 351  
 Kyi, A.A., **24**, 752  
 Labastire, J.-F., **29**, 813  
 Laborde, A., **25**, 1755  
 Labrincha, J.A., **30**, 1131  
 Lachowski, E.E., **29**, 1505  
 Lacroix, P., **21**, 958  
 Lagerblad, B., **26**, 593  
 Lahajnar, G., **23**, 1  
 Lai, G.-C., **22**, 743  
 Lakhani, R., **29**, 1541  
 Lal, K.B., **23**, 896  
 Lam, K.Y., **25**, 408  
 Lam, L., **28**, 271; **29**, 1905; **30**, 447, 747  
 Lamberts, L., **24**, 765  
 Lamontagne, A., **25**, 293  
 Lamour, V., **30**, 1597  
 Lan, X., **25**, 440; **26**, 663, 647; **27**, 321; **24**, 1327  
 Lan, X.H., **23**, 1040  
 Lang, K., **24**, 605  
 Langan, B.W., **21**, 691  
 Lange, D., **24**, 841  
 Lange, D.A., **24**, 1695  
 Lange, F., **27**, 1481  
 Langford, J.I., **23**, 399  
 Langier, B., **30**, 1427  
 Lapčík, L. Jr., **26**, 237  
 Laquerbe, M., **26**, 1335 **30**, 13  
 Larbi, J.A., **21**, 169, 242, 535, 727, 983  
 Larive, C., **26**, 623  
 LaRosa Thompson, J., **27**, 1561  
 Larrard, F. de, **24**, 189, 997; **25**, 1124  
 Larsson, C., **29**, 1575; **30**, 1325  
 Laskar, Md. A.I., **27**, 93  
 Lasnier, J.M., **26**, 791  
 Lassabatere, T., **29**, 1225  
 Lastra, R., **26**, 963  
 Lauer, H.V., Jr., **24**, 1153  
 Lawrence, C.D., **22**, 1047; **25**, 903; **26**, 1649; **27**, 631, 1761; **29**, 17; **30**, 667, 1321  
 Laxmi, N., **26**, 397  
 Laxmi Narasimhan, N., **26**, 39  
 Leatherman, G.L., **23**, 618  
 Le Bescop, P., **22**, 419; **26**, 27, 195, 17; **27**, 7, 1523  
 Lecourtier, J., **23**, 1169  
 Ledhem, A., **28**, 1179  
 Lee, B.I., **21**, 589; **29**, 193  
 Lee, B.-J., **29**, 215, 223  
 Lee, B.-K., **29**, 215  
 Lee, C.H., **22**, 445  
 Lee, C.-S., **27**, 1719; **28**, 985  
 Lee, C.S., **29**, 231, 1921  
 Lee, D.J., **22**, 247  
 Lee, G.C., **30**, 651  
 Lee, J.-H., **29**, 1397  
 Lee, R.J., **22**, 1170  
 Lee, S.H., **29**, 1791  
 Lee, S.K., **29**, 231  
 Lees, T.P., **28**, 1417  
 Lefort, T., **30**, 91  
 Legoux, J.-G., **28**, 321  
 Legrand, C., **30**, 1477  
 Leivo, M., **25**, 1747; **26**, 677  
 Leng, F., **30**, 989  
 Lens, N., **24**, 1267; **25**, 827

- Lepre, A., **21**, 663  
 Le Roy, R., **24**, 189  
 Leshchinsky, A.M., **21**, 205  
 Leshchinsky, M. Yu., **21**, 205  
 Letolle, R., **21**, 368  
 Létolle, R., **22**, 235, 882  
 Letourneux, R., **29**, 1215  
 Le Touzo, J.Y., **30**, 915  
 Leung, C.K.Y., **25**, 136; **27**, 427, 463  
 Levita, G., **30**, 923  
 Levitt, M., **24**, 1463  
 Lewis, B.G., **23**, 711  
 Li, A., **27**, 315, 1791; **28**, 1; **30**, 1169  
 Li, D., **24**, 159; **27**, 983; **30**, 45, 645, 881, 1239, 1381  
 Li, G., **26**, 27, 195; **27**, 7, 1523; **28**, 635, 1057; **29**, 839, 1455; **30**, 1983  
 Li, H., **27**, 315, 1791; **28**, 1; **29**, 1055, 1103, 1611  
 Li, J., **27**, 833  
 Li, L., **29**, 315  
 Li, S., **29**, 1549  
 Li, V.C., **29**, 201  
 Li, X., **28**, 493  
 Li, Y., **29**, 1013, 1455; **30**, 963  
 Li, Z., **28**, 549, 1707; **29**, 237, 769; **30**, 1251, 1277, 1593  
 Lian, H.Z., **24**, 1  
 Liang, C.H., **29**, 1411  
 Liang, M.T., **29**, 1411  
 Liebig, E., **28**, 567  
 Lilkov, V., **26**, 1065, 1073; **27**, 577; **29**, 3, 1635, 1641  
 Lim, C.C., **30**, 725  
 Lim, G.-G., **29**, 215, 223  
 Lim, T.H., **25**, 1086  
 Lim, Y.S., **21**, 589  
 Limbachiya, M.C., **27**, 601; **29**, 1475  
 Lin, B., **28**, 643; **30**, 699  
 Lin, G.C., **22**, 641  
 Lin, W., **26**, 1775  
 Lin, W.W., **28**, 649  
 Lin, X., **24**, 1558; **26**, 1753; **27**, 1293  
 Lin, Z., **26**, 1505; **29**, 201  
 Linert, W., **27**, 501  
 Lingchao, L., **30**, 77  
 Liou, D.C., **24**, 319  
 Lipowski, G., **27**, 907  
 Little, D.N., **28**, 401  
 Litvan, G.G., **22**, 1141  
 Liu, B., **29**, 1549; **30**, 1489  
 Liu, C., **25**, 417; **28**, 245  
 Liu, F., **27**, 1085; **30**, 77  
 Liu, F.S., **30**, 1773  
 Liu, J., **28**, 309  
 Liu, J.-Y., **29**, 1983; **30**, 981  
 Liu, Q., **30**, 1251, 1593  
 Liu, S.-L., **29**, 957  
 Liu, T., **28**, 365  
 Liu, W., **27**, 107  
 Liu, X., **26**, 943; **28**, 1281  
 Liu, X.L., **24**, 1  
 Liu, Z., **21**, 1049; **22**, 1  
 Livingston, R.A., **29**, 287; **30**, 491, 1853  
 Ljubič-Mlakar, T., **30**, 1709  
 Lo, Y., **29**, 805  
 Lobo, C., **21**, 229; **22**, 961; **23**, 104  
 Locoge, P., **22**, 431  
 Lodi, S.H., **25**, 969  
 Log, P.A., **26**, 707  
 Loizidou, M., **30**, 1641  
 Lokhorst, S.J., **27**, 1465  
 Lombardi, J., **26**, 623; **27**, 1379  
 Long, S., **25**, 1417; **28**, 245  
 López, J., **29**, 623  
 López, W., **23**, 33, 368, 1130  
 López-Atalaya, Ma., **26**, 1157  
 López-Atalaya, M.M., **28**, 209; **29**, 893  
 Lorente, J.C., **26**, 1199  
 Lorenzo, M.P., **24**, 1403; **27**, 515  
 Lota, J.S., **25**, 1811; **29**, 1693  
 Loukili, A., **29**, 577; **30**, 915  
 Lovera, P., **27**, 1523; **30**, 521  
 Low, N.M.P., **22**, 981; **23**, 905, 1016, 1467; **24**, 250, 650, 874  
 Lu, J., **24**, 1185  
 Lu, L., **30**, 77  
 Lu, W., **26**, 1007, 1485; **28**, 183, 477, 783  
 Lu, X., **27**, 293; **30**, 643, 973, 989  
 Lu, Y., **26**, 805  
 Lu, Y.N., **23**, 1040  
 Lu, Z., **27**, 989; **30**, 227  
 Lück, R., **22**, 1161  
 Lum, S.F.H., **23**, 1047  
 Lumley, J.S., **26**, 139; **27**, 235  
 Luo, H., **27**, 1031  
 Luo, X., **30**, 247, 323, 379, 907  
 Lutz, M.P., **27**, 1113  
 Luxan, M.P., **21**, 709  
 Luxán, M.P., **23**, 46; **24**, 533, 728; **25**, 1755; **26**, 841; **29**, 1753; **30**, 517, 553  
 Lydon, F.D., **25**, 177, 543, 1246, 1737; **26**, 63  
 Lynsdale, C.J., **27**, 1761; **28**, 1037, 1453; **29**, 17, 1019; **30**, 667, 1225, 1321  
 Lyon, S.B., **25**, 581, 980; **26**, 717  
 Ma, E., **27**, 845  
 Ma, W., **22**, 531, 1192; **24**, 389; **25**, 417; **27**, 1237  
 Macías, A., **25**, 376; **27**, 215, 337, 479; **29**, 1753, 2005; **30**, 553, 1231  
 MacDonald, D.D., **30**, 1941  
 MacDonald, K.A., **25**, 1407  
 Macías A., **25**, 376  
 Machabée, Y., **30**, 535  
 Machinaga, O., **30**, 1435  
 Macphee, D., **21**, 991  
 Macphee, D.E., **23**, 507  
 Madèra, J., **30**, 1267  
 Madej, J., **24**, 413  
 Madejová, J., **24**, 413; **26**, 1727  
 Madrid, J., **27**, 337, 479; **29**, 2005  
 Maeda, K., **24**, 497  
 Maeda, N., **29**, 121  
 Magee, B.J., **27**, 825; **29**, 917  
 Magnaghi, V., **29**, 95  
 Mahapatra, D.M., **26**, 1057  
 Mahmud, H., **30**, 1501  
 Mai, Y.-W., **25**, 408  
 Mainguy, M., **29**, 1225; **30**, 83  
 Maiza, P., **24**, 1317; **23**, 1283; **26**, 1579  
 Maiza, P.J., **28**, 189; **30**, 1407  
 Majling, J., **23**, 693, 1331, 1351; **24**, 1065  
 Majumdar, A.J., **22**, 1019, 1101; **23**, 991; **24**, 335; **29**, 429; **30**, 1747  
 Mak, S.L., **24**, 139; **25**, 1791  
 Maki, I., **23**, 599, 1078; **24**, 497; **25**, 835, 863; **26**, 1801  
 Makovicky, E., **25**, 1691  
 Malami, C., **28**, 995; **30**, 1731  
 Malami, Ch., **24**, 1444; **25**, 1726, 1805  
 Maleki, H., **29**, 545, 651  
 Malhotra, V.M., **21**, 101; **25**, 1713; **26**, 963; **27**, 1861; **28**, 1555, 1783; **30**, 1037, 1785  
 Mallmann, R., **29**, 1949, 1959  
 Malric, B., **22**, 869; **26**, 405  
 Maltais, Y., **27**, 1009  
 Mammoliti, L., **28**, 1775; **29**, 1583  
 Mammoliti, L.T., **26**, 545  
 Mancha, H., **29**, 623  
 Mangat, P.S., **21**, 819; **22**, 1089; **25**, 999; **27**, 601; **29**, 1475; **30**, 125  
 Manghnani, M., **29**, 287  
 Mani, M., **23**, 863  
 Mannan, M.A., **29**, 619  
 Mannonen, R., **26**, 1423  
 Mansoutre, S., **29**, 1441  
 Mao, A., **30**, 1169  
 Mao, Q., **28**, 549, 1707; **29**, 769

- Mar, C.Y., **30**, 599  
 Marar, K., **26**, 1121  
 Maravelaki-Kalaitzaki, P., **29**, 1929  
 Marchand, J., **25**, 1124, 1667, 1781; **26**, 427, 573, 749, 869, 1555, 1831; **27**, 1009; **29**, 1341; **30**, 25, 37, 359, 1895, 1929, 1955, 1961  
 Marchetti, A., **30**, 923  
 Marcialis, A., **21**, 251  
 Marcotte, T.D., **29**, 1555, 1561  
 Marel, V., **25**, 1491  
 Maret, V., **26**, 93  
 Marfil, S.A., **23**, 1283; **26**, 1579; **28**, 189; **30**, 1407  
 Marino, O., **26**, 861  
 Marinos, J., **21**, 655; **23**, 1268  
 Marinović-Neducin, R., **28**, 713  
 Marken, C., **21**, 109  
 Markeset, G., **25**, 702  
 Marroccoli, M., **26**, 1673  
 Martín, A., **30**, 1413  
 Martínez-Ramírez, S., **25**, 39; **27**, 777; **28**, 125, 221; **29**, 107; **30**, 1625  
 Martín-Pérez, B., **30**, 1215  
 Martirena Hernández, J.F., **28**, 1525  
 Martys, N.S., **27**, 747  
 Marusin, S., **24**, 798  
 Mascolo, G., **26**, 861  
 Masi, M., **27**, 1591  
 Maslehuddin, M., **21**, 38, 956, 1183; **23**, 139  
 Mason, T.O., **26**, 1325; **28**, 1737; **30**, 585  
 Masood, I., **24**, 291, 527  
 Massard, P., **26**, 623; **27**, 1379  
 Massat, M., **22**, 431, 503  
 Masse, S., **23**, 1169  
 Massidda, L., **21**, 251, 455; **23**, 301; **26**, 1381  
 Matala, S., **26**, 919  
 Mateos, P., **30**, 1715  
 Mather, B., **26**, 337; **29**, 789, 1277, 2015; **30**, 163, 331  
 Matiasovsky, P., **27**, 589  
 Matsuda, M., **22**, 387  
 Matsufuji, **29**, 785  
 Matsuhisa, M., **30**, 197  
 Matsumoto, J., **22**, 381  
 Matsunaga, Y., **25**, 709, 715  
 Matsushita, F., **30**, 1741  
 Matte, V., **30**, 1947  
 Matusinovic, T., **23**, 177, 885  
 Mau, S.T., **22**, 621  
 Maximilien, S., **27**, 63  
 McCarter, W.J., **23**, 1178; **24**, 1097; **29**, 377; **30**, 1395  
 McCarthy, G.J., **25**, 658  
 McCarthy, M.J., **23**, 1443; **26**, 1761; **28**, 1209  
 McDonald, D., **26**, 1601; **28**, 1827  
 McGrath, P., **29**, 873  
 McGrath, P.F., **26**, 1239; **29**, 1239  
 McNeil, S., **28**, 961  
 Medici, F., **25**, 1147  
 Mehner, H., **22**, 1161  
 Mehta, P.K., **28**, 623  
 Mei, Z., **30**, 799  
 Mellas, M., **23**, 399, 576  
 Menéndez Álvarez, M., **29**, 727  
 Mendoza, G., **29**, 623, 1999  
 Menek, N., **23**, 603; **29**, 777; **30**, 1615  
 Menneteau, F.D., **30**, 1915  
 Merikallio, T., **26**, 1423  
 Metcalf, J.B., **26**, 1083  
 Meunier, P., **30**, 1597  
 Meyer-Ilse, W., **28**, 411  
 Mi, J., **27**, 1439  
 Michalko, O., **27**, 415  
 Middendorf, B., **28**, 1525  
 Mihajlov, A., **25**, 1490  
 Mihashi, H., **21**, 545, 737  
 Mikula, R., **26**, 1369  
 Mikulic, D., **25**, 187  
 Milanese, C.A., **24**, 1073; **26**, 1579; **30**, 1407  
 Miletić, S., **26**, 1295; **28**, 713, 1545  
 Milia, F., **30**, 931  
 Miller, F.M., **26**, 1821  
 Mills, R.H., **21**, 257  
 Min, D., **24**, 1584  
 Min, X., **24**, 1311  
 Mindess, S., **22**, 67, 678; **23**, 83; **24**, 1140, 1286; **25**, 345; **26**, 9, 363, 883; **28**, 687; **29**, 753  
 Mironova, M.K., **29**, 1591  
 Mishra, U.K., **25**, 1639  
 Mitchell, D.R.G., **28**, 1571  
 Mitsuda, T., **25**, 243, 249  
 Mitsumatsu, M., **25**, 863  
 Miyazawa, S., **25**, 281, 288, 1633; **26**, 567  
 Mkrtchyan, V.P., **30**, 709  
 Mobasher, B., **21**, 147; **24**, 1121; **27**, 1569  
 Mohamed, H.M., **28**, 1119  
 Mohapatra, B.N., **21**, 1176  
 Mohr, P., **30**, 1903  
 Moine, G., **22**, 451  
 Moir, G.K., **26**, 139  
 Molina, S.G., **25**, 572, 870  
 Mollah, M.Y.A., **23**, 773; **24**, 109; **25**, 671; **30**, 267  
 Molloy, B.T., **21**, 819  
 Monosi, S., **25**, 961  
 Monshi, A., **29**, 1373  
 Monteiro, P.J.M., **21**, 625, 947; **23**, 147; **24**, 194, 243, 1245, 1423; **25**, 276, 1605; **26**, 567; **27**, 1113, 1333, 1899; **28**, 411, 1195; **29**, 527; **30**, 503, 709, 817, 843  
 Monteny, J., **28**, 1621; **30**, 623  
 Montgomery, D.G., **21**, 1083; **22**, 755  
 Monticelli, C., **30**, 635  
 Monzó, J., **23**, 917; **24**, 791; **25**, 449, 1469; **26**, 225, 1389; **27**, 1365; **28**, 675; **29**, 87, 1773; **30**, 543  
 Moon, Y.-H., **28**, 1761  
 Mora, C.F., **28**, 921; **29**, 1403; **30**, 351  
 Mora, E.P., **23**, 917  
 Moraitou, G., **29**, 1929  
 Moral, H., **26**, 1619, 1629  
 Moranville, M., **25**, 1667; **26**, 27, 195, 573; **27**, 7, 1543; **30**, 1861, 1947  
 Moras, S., **30**, 91  
 Moreno, E.I., **26**, 1779; **27**, 1747; **30**, 1565  
 Mori, H., **29**, 611  
 Morikawa, M., **21**, 309  
 Morlat, R., **29**, 847  
 Morlier, P., **23**, 663  
 Moroni, N., **29**, 523  
 Morris, W., **26**, 1779  
 Morrison, G.R., **29**, 1099  
 Morsy, M.S., **27**, 1307; **28**, 1157; **29**, 603; **30**, 1827  
 Mörtel, H., **25**, 1621; **27**, 1481  
 Motzet, H., **29**, 1005  
 Motzet, M., **25**, 1808  
 Moukwa, M., **21**, 863; **23**, 122, 711  
 Mouret, M., **27**, 345; **29**, 369; **30**, 1477  
 Moutsatsou, A., **22**, 95  
 Mu, B., **29**, 237; **30**, 1277  
 Mu, R., **29**, 1519  
 Muñoz, M.V., **24**, 776  
 Muñoz, M. Vargas, **25**, 1103  
 Mueller, D., **23**, 321  
 Muhamad, M.N., **23**, 267  
 Müller, A., **24**, 503; **25**, 809  
 Mullick, A.K., **28**, 1585  
 Mumenthaler, T., **29**, 297  
 Munn, J., **26**, 641; **27**, 1773; **28**, 1841; **30**, 1333, 1507  
 Munoz, M. Vargas, **26**, 327  
 Muraoka, S., **22**, 381  
 Murat, M., **21**, 378; **23**, 329; **26**, 377  
 Mustafa, M.A., **21**, 601; **24**, 661  
 Mutin, J.C., **25**, 779; **26**, 491  
 Mwaluwinga, S., **27**, 733

- Myers, H.R., **30**, 359  
 Myers, R.E., **27**, 23; **28**, 341
- Naaman, A.E., **29**, 407  
 Nagaraj, T.S., **26**, 933  
 Nagasaki, S., **29**, 1091  
 Nägele, E., **21**, 478; **23**, 13; **25**, 1209  
 Naidenov, V., **21**, 896, 1028  
 Naik, T.R., **24**, 303, 913; **26**, 49, 1489  
 Nakano, K.-I., **22**, 743  
 Nappi, S., **30**, 1609  
 Naqvi, S.J., **23**, 1223  
 Narasimhan, S., **23**, 1085  
 Narayanan, N., **30**, 457  
 Nataraja, M.C., **29**, 989; **30**, 593  
 Natesaiyer, K.C., **22**, 653  
 Navarro, I., **29**, 1061; **30**, 1413  
 Navi, P., **29**, 507  
 Nayak, M., **28**, 1393  
 Nayberg, T.M., **25**, 1305  
 Nechar, M., **29**, 1749  
 Neducin, R.M., **25**, 1490  
 Nedwell, P.J., **26**, 319  
 Nehdi, M., **26**, 883; **28**, 687; **30**, 1663  
 Nemati, K.M., **26**, 35; **27**, 1333  
 Nerád, I., **24**, 259  
 Neubauer, J., **24**, 1413; **25**, 1808; **26**, 77; **27**, 1603  
 Neuherz, H., **28**, 811  
 Neumann-Venevere, P., **21**, 262  
 Neville, A., **22**, 1067  
 Newman, P., **29**, 719  
 Ngala, V.T., **25**, 819; **27**, 995  
 Ni, H.-G., **29**, 1875; **30**, 1245  
 Nielson, A., **24**, 83  
 Nieto, P., **26**, 93  
 Niiseki, S., **21**, 737  
 Niklasson, G.A., **21**, 496; **23**, 1153  
 Nilforoushan, M.R., **25**, 1523  
 Nilsen, A.U., **23**, 147; **24**, 194, 1423; **25**, 276  
 Nilsson, K., **22**, 405  
 Nilsson, L.O., **30**, 1581  
 Nilsson, L.-O., **22**, 541; **23**, 247; **25**, 695, 1133  
 Nishi, T., **22**, 387  
 Nishibayashi, S., **25**, 1647  
 Nishikawa, T., **22**, 6, 721; **24**, 176; **25**, 1218  
 Nkinamubanzi, P.-C., **23**, 939  
 Nocun-Wczelik, W., **27**, 83  
 Nocuñ-Wczelik, W., **29**, 1759  
 Nojiri, T., **22**, 743  
 Nomura, N., **21**, 545, 737  
 Nonat, A., **25**, 779; **26**, 491  
 Northwood, D.O., **23**, 1289; **25**, 1407
- Nouguier, H., **22**, 477  
 Novič, M., **29**, 441  
 Novinson, T., **22**, 815  
 Nóvoa, X.R., **27**, 1191  
 Nygaard, E.C., **25**, 1766
- Oba, E., **25**, 863  
 Odabasoglu, M., **23**, 152, 603  
 Odigure, J.O., **24**, 1549; **26**, 1171, 1435; **27**, 1641; **29**, 303  
 Odler, I., **21**, 262, 975; **22**, 1130; **25**, 853, 919; **26**, 1307, 1315; **27**, 473, 629; **28**, 299; **29**, 731; **30**, 161, 1337, 1443  
 O'Farrell, M., **27**, 697; **29**, 1781; **30**, 757  
 O'Flaherty, F.J., **30**, 125  
 Ofori-Darko, F.K., **26**, 345  
 Oğuz, H., **30**, 967  
 O'Hagan, A.B., **30**, 1759  
 Ohama, Y., **21**, 309; **23**, 484; **24**, 1199, 1492; **25**, 271; **27**, 1787  
 Ohno, Y., **23**, 1078  
 Ohta, M., **24**, 424  
 Okafor, F.O., **21**, 551; **26**, 1045  
 Okamoto, T., **29**, 611  
 Okamura, T., **28**, 1297  
 Okba, S.H., **27**, 861  
 Oktar, O.N., **26**, 1619, 1629  
 Olafsson, H., **29**, 1289  
 Olek, J., **21**, 905; **28**, 1237; **29**, 2013  
 Oliew, G., **21**, 757  
 Ollitrault-Fichet, R., **28**, 1687  
 Ollivier, J.P., **22**, 431, 503; **25**, 741; **30**, 217, 1581  
 Olson, R.A., **28**, 1467  
 Olorunsogo, F.T., **28**, 907  
 Ölmez, H., **23**, 115, 152; **26**, 701; **27**, 805  
 Omorjan, R., **26**, 1295  
 Omotoso, O.E., **26**, 1369  
 O'Neill, E.A., **29**, 1487  
 Öner, M., **30**, 473  
 Ong, C.K., **25**, 1086; **27**, 1419  
 Ong, S., **24**, 1305  
 Ono, Y., **28**, 63; **29**, 553  
 Orak, S., **30**, 171  
 Orange, G., **29**, 847  
 Oriol, M., **25**, 265  
 Ortega, E.A., **30**, 1641  
 Ortiz-Longo, C.R., **28**, 1429  
 Osbaeck, B., **25**, 1691  
 Ostrowski, C., **25**, 945  
 Otero, E., **23**, 33  
 Oullet, J., **29**, 719  
 Ouyang, C., **22**, 1201; **23**, 711
- Owaki, E., **27**, 1523  
 Özdemir, M., **27**, 1281  
 Ozkul, M.H., **27**, 721; **28**, 737; **30**, 1755  
 Özturan, T., **27**, 165  
 Öztürk, A., **30**, 967  
 Ozyildirim, C., **29**, 1281
- Page, C.L., **21**, 581, 635; **22**, 990; **23**, 498; **25**, 819; **27**, 147, 995; **30**, 1747  
 Pagé, M., **30**, 683; **30**, 683  
 Pagliolico, S., **28**, 803  
 Palacios, J., **23**, 1237  
 Palmer, J.D., **22**, 293, 325  
 Palomo, A., **22**, 793; **24**, 1177; **25**, 1131; **26**, 457, 1361; **29**, 997, 1323  
 Palomo, J.G., **29**, 1313  
 Palta, P., **25**, 671  
 Pan, G., **27**, 1885; **28**, 171  
 Pan, Y., **29**, 1067  
 Panda, J.D., **21**, 1176; **26**, 1057  
 Pandey, S.P., **29**, 1525; **30**, 19  
 Pandolfo, P., **22**, 439  
 Pane, I., **30**, 1903  
 Pang, S.-S., **28**, 635, 1057; **29**, 839, 1455  
 Panigraphy, P.K., **25**, 1117  
 Papadakis, V.G., **29**, 79, 1727; **30**, 291, 1647  
 Papo, A., **21**, 1111  
 Parameswaran, V.S., **22**, 186, 195  
 Parissakis, G., **25**, 9, 79, 477, 948, 955; **26**, 1473  
 Park, C.-K., **27**, 1719; **28**, 141, 955, 1357; **30**, 429  
 Park, J.-Y., **29**, 99, 361  
 Park, S.B., **21**, 589; **29**, 193  
 Park, Y.-S., **29**, 1397  
 Parkash, R., **28**, 481, 867; **29**, 355, 1851, 1857; **30**, 1361  
 Parrott, L.J., **22**, 1077; **25**, 819  
 Parsonage, J.R., **24**, 542; **28**, 1537  
 Partalin, T.A., **29**, 1591  
 Pastore, T., **26**, 683, 691  
 Patel, H.H., **25**, 485  
 Patnaikuni, I., **27**, 817  
 Paul, M., **30**, 1869  
 Paulini, P., **21**, 1189; **24**, 488  
 Paviet-Hartmann, P., **29**, 1359  
 Pavlík, V., **24**, 551, 1495; **26**, 475; **27**, 1731; **30**, 481, 895  
 Pavlovic, M.N., **30**, 153  
 Payá, J., **23**, 917; **24**, 791; **25**, 449, 1469; **26**, 225, 1389; **27**, 1365; **28**, 675; **29**, 87, 1773; **30**, 543  
 Pearce, A.G., **27**, 127  
 Pech, R., **22**, 351



- Peemoeller, H., **21**, 391  
 Pei, M., **30**, 1841  
 Pei, T., **27**, 833  
 Peled, A., **27**, 1099; **30**, 781  
 Pellissier, C., **28**, 1605; **29**, 1705  
 Pendleton, R.L., **30**, 391, 403  
 Penev, D., **21**, 137; **23**, 925  
 Peng, J., **29**, 237; **30**, 1277  
 Peng, X., **26**, 1109  
 Penttala, V., **26**, 1423  
 Pera, J., **25**, 265, 933; **27**, 1, 63, 1513, 1533  
 Péra, J., **29**, 171, 261, 1387, 1605; **30**, 315  
 Perami, R., **21**, 575, 745; **23**, 1121; **24**, 62, 396  
 Pérami, R., **29**, 687  
 Pereira, D.A., **30**, 1131  
 Pereira, E., **21**, 51; **23**, 937  
 Perez-Pena, M., **24**, 1121  
 Peric, A., **25**, 311, 314  
 Peric, A.D., **21**, 941; **22**, 571, 937  
 Peris, E., **27**, 1365  
 Peris Mora, E., **23**, 917; **24**, 791; **25**, 449, 1469; **26**, 225; **29**, 87; **30**, 543  
 Perraton, D., **23**, 939  
 Perrin, B., **27**, 1429  
 Perris, E., **28**, 675  
 Perron, S., **26**, 539  
 Perruchot, A., **26**, 623; **27**, 1379  
 Perry, R., **22**, 822; **23**, 196; **24**, 707; **25**, 1435  
 Pershina, L.A., **28**, 1289  
 Person, A., **21**, 368  
 Persson, B., **27**, 1667; **28**, 1023; **29**, 1647  
 Peter, J.A., **22**, 186  
 Peters, T., **29**, 1569  
 Peterson, O., **25**, 617; **26**, 637  
 Petersson, P.E., **23**, 683  
 Petit, J.C., **28**, 847  
 Petrasinovic-Stojkanovic, Lj., **22**, 139  
 Petrou, M.F., **30**, 809  
 Petrov, I., **24**, 830  
 Petrov, O., **29**, 1641  
 Petrov, O.E., **27**, 577  
 Pettersson, K., **22**, 15; **23**, 1095  
 Peurtas, F., **25**, 1131  
 Pheeraphan, T., **25**, 136; **27**, 427, 463  
 Philipose, K.E., **25**, 1159  
 Philippot, S., **26**, 93  
 Philippou, Th., **21**, 1129; **23**, 1268  
 Piasta, W.G., **22**, 149  
 Piau, J.-M., **27**, 869; **29**, 27; **30**, 1551  
 Piccioli, P., **25**, 961  
 Pierre, P., **29**, 1655  
 Pierre Bonnet, J., **30**, 1057  
 Pigeon, M., **21**, 844; **22**, 804; **23**, 431; **24**, 1433; **25**, 293, 1075; **26**, 427, 601, 749, 1163, 1555, 1639; **27**, 1261; **29**, 1655  
 Pignat, C., **29**, 507  
 Piltner, R., **30**, 843  
 Pindado, M.A., **29**, 1077  
 Pineau, F., **26**, 1707  
 Ping, X., **21**, 515, 718, 999  
 Pinillos, C., **25**, 449  
 Pintar, M.M., **21**, 391  
 Piślewski, N., **30**, 931  
 Planas, J., **30**, 731  
 Pleau, R., **26**, 601, 1163  
 Plecas, I., **25**, 311, 314  
 Plecas, I.B., **21**, 941; **22**, 571, 937  
 Plumley, P.W., **21**, 489  
 Plunkett, B.A., **22**, 181; **23**, 242; **29**, 515  
 Poděbradská, J., **30**, 1267  
 Poellmann, H., **23**, 422  
 Poirier, J., **30**, 1597  
 Pollmann, H., **21**, 885; **23**, 267  
 Pöllmann, H., **24**, 1413; **25**, 1347, 1808; **29**, 1005, 1841  
 Pong, W., **22**, 815  
 Pons, G., **22**, 159; **27**, 1429  
 Poole, A.B., **25**, 485  
 Poon, C.S., **28**, 271; **29**, 1905; **30**, 447, 747  
 Poor, N., **29**, 315  
 Popovic, **24**, 721, 931  
 Popovici, M., **28**, 231  
 Porto Lopez, J.M., **21**, 51  
 Potgieter, J.H., **26**, 1269, 1613; **29**, 1815; **30**, 823  
 Pouskouleli, G., **21**, 523  
 Poznic, M., **29**, 441  
 Prado, P.J., **28**, 261, 453  
 Prakash, P.V.S., **25**, 1273  
 Prasad, M., **29**, 287  
 Prasad, P.M., **27**, 1037  
 Prat, E., **29**, 813  
 Pratt, P.L., **24**, 1033; **25**, 1811  
 Prené, S., **30**, 1955  
 Prince, W., **21**, 575, 745; **23**, 1121; **24**, 62, 396; **29**, 687  
 Princigallo, A., **30**, 923  
 Prokopski, G., **30**, 579, 1427  
 Proverbio, E., **27**, 1213  
 Pu, X., **28**, 1819; **29**, 951  
 Puch, C., **24**, 641; **25**, 1123  
 Puertas, F., **23**, 20; **24**, 1177; **25**, 39, 572; **26**, 457, 1361; **27**, 359, 777, 1203; **28**, 125, 221; **29**, 997, 1313, 1673; **30**, 1625  
 Purnell, P., **30**, 1747  
 Pushpalal, G.K.D., **25**, 1191; **27**, 1393; **29**, 121  
 Pye, G.B., **22**, 551  
 Qasrawi, H.Y., **30**, 739  
 Qazweeni, J.A., **21**, 1155  
 Qian, C., **24**, 1111, 1327  
 Qian, C.X., **30**, 63  
 Qian, G., **27**, 315, 1791; **28**, 1  
 Qian, J., **27**, 1031  
 Qian, M., **28**, 309  
 Qin, H., **28**, 309; **30**, 71  
 Quillin, K.C., **23**, 991  
 Quenard, D., **25**, 827; **30**, 1915  
 Quéneudec, M., **28**, 1179; **30**, 1559  
 Quenhard, D., **24**, 1267  
 Qureshi, J., **25**, 969  
 Qin, X., **29**, 349  
 Quéneudec, M., **29**, 339  
 Quillin, K., **29**, 429  
 Radaelli, G., **27**, 1591  
 Radin, S.S., **30**, 1283  
 Radocea, A., **22**, 855  
 Rafai, N., **21**, 368; **22**, 235, 882  
 RaFoss, E., **21**, 911  
 Raharinaivo, A., **22**, 56; **26**, 253  
 Rahhal, V., **30**, 703  
 Rahman, Md.M., **29**, 1091  
 Rahmat, A., **22**, 577  
 Rai, S., **30**, 1485  
 Raina, K., **28**, 1093  
 Raivio, P., **24**, 896  
 Raj, D., **21**, 484  
 Rajagopal, R.S., **22**, 186  
 Rajamane, N.P., **21**, 1180; **22**, 186, 195  
 Rajczyk, K., **21**, 192  
 Ramachandran, V.S., **21**, 574, 809; **22**, 27, 689; **23**, 488  
 Ramadan, A.O.A., **30**, 491  
 Ramamurthy, K., **30**, 457  
 Ramesh, G., **26**, 611  
 Ramirez, E., **26**, 501, 1525; **28**, 577  
 Ramlochan, T., **30**, 339  
 Randriambololona, R., **28**, 357, 1839, 1843  
 Ranganath, R.V., **28**, 749  
 Ranogajec, J., **22**, 139; **25**, 1490; **26**, 1295; **28**, 713  
 Rao, A., **24**, 1153  
 Rao, G.A., **28**, 1505  
 Rao, G.S.N., **24**, 277; **26**, 465  
 Rao, S.V.S., **23**, 896, 169  
 Rapin, J.-P., **30**, 307



- Rasheeduzzafar, **21**, 38, 777, 956, 1035, 1183; **22**, 79; **23**, 1357; **24**, 8; **25**, 1543
- Rashid, S., **23**, 267
- Rathbone, R., **28**, 1479
- Rathbone, R.F., **27**, 193
- Rathje, E., **24**, 424
- Ravina, D., **24**, 1455; **25**, 1320
- Ray, A., **26**, 1399; **27**, 1073; **28**, 1109, 1309, 1317
- Rayment, D.L., **24**, 335
- Razek, M.M.A. El, **25**, 1615
- Read, D., **22**, 497
- Reardon, E.J., **21**, 441; **24**, 1515; **25**, 1043
- Recuero, A., **24**, 1214; **25**, 1138
- Reda, M.M., **27**, 711, 861; **29**, 323
- Redjel, B., **25**, 1655
- Redler, L., **21**, 873
- Refait, Ph., **29**, 1705
- Rejeb, S.K., **26**, 585
- Renaudin, G., **29**, 63, 1937; **30**, 307
- Retta, N., **21**, 401; **25**, 553
- Rettel, A., **23**, 1056
- Revertégat, E., **22**, 235, 259, 451, 882
- Revertégat, É., **24**, 1433; **26**, 749
- Rha, C.Y., **29**, 231
- Rhim, H.C., **21**, 625; **25**, 1011
- Rho, J.-S., **29**, 215, 223
- Richard, P., **25**, 1501; **29**, 577
- Richardson, I.G., **22**, 1001; **23**, 131, 999; **24**, 813, 1191; **29**, 1131
- Richet, C., **22**, 259, 431; **30**, 1947
- Ridge, M.J., **25**, 224
- Ringot, E., **21**, 835, 928, 1058; **22**, 159; **25**, 741
- Río, O., **24**, 1214; **25**, 1138
- Rivera, J., **29**, 945
- Rivera, J.-P., **29**, 1937
- Rivereau, A., **23**, 1169
- Robertson, R.E., **27**, 171; **29**, 407
- Robins, P., **29**, 1067
- Rocha, J.C., **29**, 1387
- Rodrigues, F.A., **24**, 987; **28**, 877; **29**, 527, 747; **30**, 503
- Rodrigues, M.G., **26**, 327
- Rodriguez, D., **30**, 91
- Rodríguez, G.J., **26**, 825
- Rodríguez, M.G., **24**, 776; **26**, 327
- Rodríguez, M. González, **25**, 1103
- Rodríguez-Navarro, C., **30**, 1527
- Rogers, M., **21**, 109
- Rojás, M.I.S., **25**, 433
- Rojas, M.I. Sanchez de, **21**, 709; **24**, 533
- Rols, S., **29**, 261
- Roncero, J., **28**, 1325
- Ronin, V., **29**, 1575; **30**, 1325
- Roode, Q.I., **26**, 1269
- Roper, H., **23**, 1418
- Roshavelov, T.Tz., **23**, 803
- Rossetti, V.A., **25**, 1147
- Rostásy, F.S., **23**, 1159; **25**, 255; **26**, 1409; **29**, 1039, 1047
- Rouseková, I., **27**, 1825; **28**, 13
- Roussel, J.C., **23**, 1169
- Rovnaníková, P., **30**, 1267
- Rowbottom, C.G., **27**, 1681
- Roy, A., **22**, 589; **23**, 833; **26**, 1083; **30**, 437
- Roy, D.M., **21**, 66; **23**, 1351; **24**, 1558; **26**, 1, 41; **27**, 1463, 1501; **28**, 141; **29**, 1, 249, 1305; **30**, 1879
- Roy, R., **21**, 66; **26**, 41
- Roy, S., **28**, 1049
- Roy, S.K., **23**, 1289
- Roztocká, D., **23**, 294
- Rubin, J.B., **29**, 1359
- Rudert, V., **27**, 1481
- Ruizhen, Z., **24**, 1383
- Rumm, **21**, 391
- Rušić, D., **30**, 1017, 1655
- Rusin, Z., **21**, 614
- Saad, M., **25**, 1615; **26**, 669, 1479
- Saada, R., **21**, 835, 1058
- Saak, A.W., **29**, 1491
- Saasen, A., **21**, 109, 911; **26**, 707; **27**, 637; **30**, 1759, 1767
- Sabir, B.B., **25**, 1567; **27**, 785; **29**, 1781; **30**, 757
- Sabouni, A.R., **23**, 592
- Sabouraud, A., **26**, 791
- Saccani, A., **29**, 95
- Saetta, A.V., **23**, 761; **25**, 1703
- Safiuddin, M., **29**, 1427; **30**, 1501
- Sagoe-Crentsil, K.K., **23**, 785, 1380; **24**, 313
- Sagrera, J.L., **24**, 1403
- Sagüés, A.A., **26**, 1779; **27**, 1747; **29**, 315
- Sahu, S., **21**, 1023; **22**, 671; **23**, 294, 693, 1331, 1351; **24**, 1065
- Sa'id-Shawqi, Q., **26**, 851; **28**, 391
- Saija, L.M., **25**, 503
- Saito, H., **30**, 1815
- Saito, M., **25**, 803
- Sakai, E., **25**, 127, 709, 715; **29**, 1791
- Sakata, K., **27**, 733
- Sakr, K., **27**, 1919
- Sales, G.W., **29**, 1693
- Sallée, H., **29**, 339
- Salmon, E., **29**, 209
- Salvador, S., **25**, 102
- Samet, B., **27**, 369
- Sammes, N.M., **29**, 55
- Samson, E., **26**, 1831; **29**, 1341; **30**, 1895
- Samuel, G., **29**, 355
- Sandberg, P., 1489; **29**, 473
- Sánchez de Rojas, M.I., **23**, 46; **26**, 203, 331; **27**, 619; **29**, 945
- Sanchez-Rojas, M.I., **25**, 433
- Sangha, C.M., **22**, 181; **23**, 242; **29**, 515
- Sanjayan, J.G., **28**, 655; **29**, 113, 455, 459, 607, 659, 1619, 1977; **30**, 791, 1367, 1401, 1791
- Sanjuán, M.A., **24**, 1214; **28**, 555; **29**, 1597
- Sanna, U., **21**, 251, 455; **23**, 301; **26**, 1381
- Santagata, M.C., **30**, 1389
- Santoro, L., **23**, 1205; **24**, 393; **25**, 113
- Santos, R.S., **29**, 747
- Saouma, V.E., **26**, 949
- Sari, M., **29**, 813
- Saricimen, H., **23**, 1085
- Sarkar, S.L., **21**, 917, 1137; **22**, 605, 1011; **23**, 874; **24**, 959; **25**, 1423; **27**, 193, 369; **28**, 401
- Sarott, F.A., **22**, 439
- Sarria, J., **29**, 1249
- Sarvahi, R., **22**, 725
- Sarvaranta, L., **24**, 896
- Sato, K., **22**, 6
- Satoh, Y., **21**, 309
- Saucier, F., **23**, 431; **27**, 1261
- Sausová, S., **24**, 259
- Sawaki, D., **22**, 1115; **25**, 353; **27**, 37, 1453
- Sawayama, K., **28**, 1201; **29**, 37
- Sayed, M.S., **27**, 1919
- Scantlebury, J.D., **25**, 581, 980; **26**, 319, 717
- Schulson, E.M., **30**, 191
- Scheetz, B.E., **27**, 75, 1561
- Schennach, R., **30**, 267
- Scherer, G.W., **29**, 1149, 1347; **30**, 673
- Schlegel, E., **24**, 830
- Schmidt, F., **23**, 1159
- Schmidt-Döhl, F., **25**, 255; **29**, 1039, 1047
- Schmitt, N., **21**, 963; **30**, 1597
- Schneider, U., **22**, 149; **23**, 13; **28**, 509
- Schober, G., **25**, 1621; **29**, 855
- Scholl, E., **21**, 127, 952
- Schrefler, B.A., **23**, 761; **25**, 1703
- Schrempf, S., **28**, 811

- Schultz, M.A., **23**, 273, 1369  
 Schulze, J., **29**, 909  
 Schumacher, A.S., **26**, 539, 1301  
 Schwartzentruber, A., **29**, 267  
 Schwoeble, A.J., **22**, 1170  
 Scian, A.N., **21**, 51; **24**, 937; **30**, 137  
 Scrivener, K.L., **22**, 1224; **24**, 1033; **25**, 561; **26**, 35; **29**, 1215  
 Seals, R.K., **26**, 1083; **30**, 437  
 Sebastián, E., **29**, 1749; **30**, 1527  
 Sebastián, P.E., **26**, 825  
 Sebök, T., **27**, 185; **29**, 591, 761, 1769; **30**, 511, 993  
 Sedran, T., **24**, 997  
 Seehra, S.S., **23**, 254  
 Segre, N., **28**, 75; **29**, 747; **30**, 1421  
 Seigneurin, A., **27**, 951  
 Seiss, M., **22**, 369  
 Sellevold, E.J., **25**, 1775; **26**, 55, 919  
 Semerák, P., **27**, 415  
 Senbetta, E., **21**, 750  
 Seneviratne, A.M.G., **21**, 1092  
 Sepe, A., **23**, 1  
 Serafin, F., **28**, 1335  
 Serrini, G., **22**, 331  
 Sersale, R., **21**, 120; **24**, 483; **25**, 1121, 1803; **28**, 19  
 Servant, S., **29**, 719  
 Setunge, S., **29**, 1977  
 Sevcik, V., **29**, 713  
 Seveque, J.L., **22**, 477  
 Seydel, R., **23**, 1056  
 Sframeli, C., **24**, 633  
 Sha, W., **29**, 1487  
 Shafiq, A.B., **26**, 1245  
 Shah, S.P., **21**, 863; **22**, 1201; **23**, 711; **24**, 841; **26**, 125; **27**, 381; **29**, 1129; **30**, 465  
 Shaker, F.A., **27**, 711  
 Shane, J.D., **28**, 1737  
 Shang, L., **27**, 1093, 1885  
 Shannag, M.J., **25**, 647; **27**, 925  
 Shao, Y., **27**, 1761; **30**, 91  
 Sharara, A.M., **24**, 966; **26**, 1179  
 Sharma, M., **21**, 484  
 Sharma, R.C., **23**, 41, 239  
 Sharma, R.L., **29**, 1525; **30**, 19  
 Sharma, R.N., **28**, 481  
 Sharp, J.H., **21**, 359, 1191; **25**, 1523; **26**, 1649; **27**, 631, 1761; **28**, 1245, 1259; **29**, 17, 1331, 1999; **30**, 667, 1321  
 Shashiprakash, S.G., **29**, 1207  
 Shayan, A., **22**, 915; **23**, 471, 1003, 1229; **24**, 387; **26**, 153; **28**, 25  
 Shehata, M.H., **29**, 1207, 1915; **30**, 1063  
 Shen, A., **30**, 1169  
 Shen, D., **28**, 549, 1707; **29**, 769; **30**, 1251  
 Shen, D.-H., **21**, 410  
 Shen, H., **30**, 1381  
 Shen, J., **30**, 45, 881, 1381  
 Shen, X., **21**, 16; **24**, 133  
 Shen, Y., **22**, 612, 769  
 Sheng, Y., **24**, 133  
 Sherman, N., **23**, 1205; **24**, 393; **25**, 113; **26**, 1673  
 Shi, C., **21**, 91; **23**, 824, 1389; **24**, 463, 1485; **25**, 15, 1333; **26**, 439, 1351, 1789; **28**, 887; **30**, 51, 607, 803  
 Shi, D., **22**, 531; **24**, 389  
 Shi, M., **29**, 1111, 1685, 1689  
 Shi, W.D., **29**, 1099  
 Shi, Z.-Q., **25**, 939; **27**, 1149; **29**, 435  
 Shibata, S., **30**, 1741  
 Shieh, M.-M., **26**, 181  
 Shin, Y.-S., **29**, 1397  
 Shima, H., **26**, 743  
 Shirasaka, T., **22**, 1115  
 Shirkavand, M., **25**, 1512  
 Shoaib, M.M., **30**, 371  
 Short, N.R., **30**, 1747  
 Shoya, M., **29**, 37  
 Shrive, N.G., **29**, 323  
 Shrivastava, O.P., **21**, 83; **24**, 573  
 Shukla, A.K., **25**, 459, 883, 1023  
 Shuttoh, K., **21**, 273  
 Sibata, T., **29**, 611  
 Sibbick, R.G., **22**, 990; **23**, 498  
 Sicard, V., **22**, 159  
 Sickafus, K.E., **29**, 1359  
 Sieber, R., **26**, 77  
 Siedel, H., **23**, 453  
 Siemer, D.D., **27**, 75  
 Silsbee, M.R., **21**, 66; **24**, 1558; **27**, 1501, 1561; **28**, 141; **29**, 157, 737, 1305, 1611; **30**, 1879  
 Silva, D.A., **30**, 1609  
 Simard, M.-A., **23**, 939  
 Šimek, Z., **26**, 237  
 Simeonov, P., **25**, 165  
 Simon, D.E., **28**, 1831  
 Singh, B., **22**, 1019, 1101; **29**, 429  
 Singh, D.N., **28**, 841  
 Singh, M., **23**, 213; **25**, 332, 752; **26**, 449; **27**, 947, 1037; **29**, 309; **30**, 571, 1185  
 Singh, N.B., **22**, 121, 725; **25**, 459, 883, 1023; **30**, 1485  
 Singh, N.P., **22**, 121, 725  
 Singh, S.S., **24**, 303, 913; **26**, 49, 1489  
 Singh, V.D., **30**, 1485  
 Sinha, **24**, 527  
 Sioulas, B., **30**, 1791  
 Sipari, P., **25**, 1747  
 Sirivivatnanon, V., **21**, 316; **22**, 188; **23**, 1273, 1418; **24**, 203; **25**, 209; **27**, 1179; **30**, 725  
 Skalny, J.P., **22**, 1170; **28**, 471; **30**, 161  
 Škvára, F., **29**, 713  
 Slade, R.C.T., **27**, 127  
 Slanicka, S., **21**, 285, 462  
 Sloane, B., **26**, 1399  
 Slowik, V., **26**, 949  
 Smadi, M.M., **29**, 1419  
 Smith, A., **30**, 1057  
 Smolej, V., **24**, 1267; **25**, 827  
 Snyder, K.A., **24**, 25, 1569; **29**, 1863; **30**, 1955  
 Sohn, D., **29**, 241  
 Solankey, A.K., **30**, 977  
 Solem-Tishmack, J.K., **25**, 658  
 Sollars, C.J., **22**, 822; **23**, 196; **24**, 707  
 Song, G., **30**, 1723  
 Song, S., **29**, 159  
 Sorensen, B., **23**, 1095  
 Soroka, I., **24**, 1455  
 Sorrentino, F., **25**, 1347; **26**, 377  
 Sota, J., **24**, 1317  
 Sota, J.D., **28**, 189  
 Sotelino, E.D., **26**, 611  
 Sotolongo, R., **30**, 517  
 Soudée, E., **30**, 315  
 Spieler, P., **22**, 439  
 Sposito, G., **27**, 1899; **28**, 1195; **29**, 527; **30**, 503  
 Sree Rama Kumar, V., **30**, 1031  
 Sreenath, H.G., **21**, 1180  
 St. John, D.A., **23**, 59, 283; **30**, 1105  
 Stadelmann, C., **21**, 757  
 Stamatakis, M.G., **27**, 889  
 Stang, H., **28**, 439  
 Stanmore, B., **29**, 765  
 Stanmore, B.R., **25**, 1403  
 Stark, J., **24**, 503  
 Starrs, G., **29**, 377; **30**, 1395  
 Stavroulaki, M., **30**, 715  
 Steffens, A., **30**, 419  
 Stegemann, J.A., **30**, 803  
 Steinke, R.E., **21**, 66  
 Stephan, D., **29**, 545, 651, 1949, 1959  
 Stevenson, G.M., **28**, 939  
 Stevula, L., **24**, 259, 413  
 Števula, L., **26**, 1727  
 Stöber, S., **29**, 1841

- Stoitchkov, V., **26**, 1065, 1073  
 Strand, G.V., **29**, 645  
 Strånel, O., **27**, 185; **29**, 591, 1769  
 Strånel, O., **30**, 511  
 Strathdee, G., **25**, 1556; **26**, 817  
 Streicher, P.E., **25**, 1284  
 Stroeven, M., **29**, 1201, 1299  
 Stroeven, P., **29**, 1201, 1299; **30**, 63  
 Stronach, S., **24**, 563  
 Stronach, S.A., **29**, 861  
 Struble, L.J., **23**, 273, 1369  
 Strunge, H., **21**, 61  
 Strydom, C.A., **26**, 1269, 1613; **29**, 1815; **30**, 823  
 Stürmer, S., **24**, 503  
 Stutzman, P.E., **22**, 891; **24**, 1044  
 Su, J., **30**, 881  
 Su, M., **26**, 805; **30**, 1251, 1593  
 Su, N., **30**, 599, 1773  
 Su, Z., **21**, 169, 242, 535, 727, 983  
 Sugama, T., **22**, 783; **23**, 1409; **25**, 91, 1305; **26**, 1661; **29**, 1969  
 Sugita, J., **25**, 127  
 Sugita, S., **27**, 1439; **28**, 1201; **29**, 37  
 Sugiyama, A., **24**, 621  
 Sugiyama, T., **26**, 781  
 Suh, J.-K., **29**, 1397  
 Sun, G.-K., **23**, 480  
 Sun, J., **29**, 1111, 1685, 1689  
 Sun, M., **28**, 549, 1707; **29**, 769; **30**, 1271, 1593  
 Sun, W., **27**, 1093, 1885; **28**, 171, 309; **29**, 423, 1519; **30**, 71, 247, 379, 907  
 Sun, Y., **30**, 963  
 Suryavanshi, A.K., **25**, 581, 980; **26**, 717, 729; **27**, 1047; **28**, 617  
 Suyadal, Y., **30**, 967  
 Suzuki, K., **22**, 6; **24**, 55, 176  
 Suzuki, N., **28**, 63; **29**, 553  
 Swamy, R.N., **26**, 729; **27**, 1047; **28**, 617; **29**, 1331  
 Swainson, I.P., **30**, 191  
 Sykes, J., **30**, 1375  
 Szabo, V., **24**, 1475  
 Taerwe, L., **30**, 623  
 Taerwe, O., **25**, 593  
 Tagnit-Hamou, A., **30**, 1097  
 Taguchi, H., **28**, 1141; **29**, 503  
 Taguchi, M., **22**, 609  
 Taguchi, T., **23**, 55  
 Takahashi, T., **30**, 197  
 Takatsu, M., **25**, 1218  
 Takebe, T., **22**, 6  
 Takenouti, H., **27**, 1191  
 Takeuchi, K., **24**, 621; **26**, 1809  
 Talbot, C., **26**, 1555  
 Talero, R., **23**, 1237; **26**, 1277  
 Tam, C.M., **29**, 805  
 Tam, M.T., **22**, 641; **24**, 1335  
 Tamás, F.D., **22**, 393, 399  
 Tamas, F.D., **28**, 155  
 Tamimi, A.K., **24**, 1299  
 Tamtsia, B., **30**, 359  
 Tamtsia, B.T., **30**, 1465  
 Tan, B.T.G., **25**, 1086  
 Tan, K., **26**, 355; **27**, 989; **28**, 1819  
 Tan, M., **24**, 1185  
 Tanaka, I., **28**, 63; **29**, 553  
 Tanaka, S., **29**, 1091  
 Tanaka, Y., **27**, 1523  
 Tandon, S., **29**, 397  
 Tang, D., **25**, 695  
 Tang, F.J., **26**, 1821  
 Tang, L., **22**, 541; **23**, 247; **25**, 1133; **28**, 1489; **29**, 1463, 1469; **30**, 1007, 1331  
 Tang, M., **21**, 16, 91, 1049; **22**, 1, 612, 769; **23**, 187, 377, 462, 1040, 1115, 1253, 1397; **24**, 119, 133, 1111, 1327, 1584; **25**, 440, 470, 1647; **26**, 647, 663, 943; **27**, 321, 329, 983; **28**, 1085; **29**, 1393  
 Tang, Z., **30**, 1251  
 Tangpagasit, J., **30**, 1209  
 Taniguchi, K., **25**, 759  
 Tanioka, T., **23**, 1078; **24**, 497  
 Tao, C., **24**, 1311  
 Tasdemir, C., **26**, 63  
 Taşdemir, M.A., **26**, 63, 1619, 1629  
 Tashiro, C., **24**, 1133  
 Tasong, W.A., **28**, 1037, 1453; **29**, 975, 1019  
 Tassios, T.P., **29**, 867  
 Taylor, A.H., **23**, 507  
 Taylor, H.F.W., **22**, 1027; **23**, 995; **24**, 1347; **25**, 1581, 1814; **26**, 139, 1013, 1029; **29**, 1173; **30**, 169  
 Taylor, M.G., **30**, 529  
 Tazawa, E., **25**, 281, 288, 1633  
 Temimi, M., **26**, 1335  
 Teng, B., **30**, 77  
 Teng, S.P., **22**, 445  
 Tennis, P.D., **30**, 855  
 Tenoutasse, N., **29**, 867  
 Teoreanu, I., **29**, 9  
 Teramura, S., **25**, 249  
 Terashi, N., **30**, 253  
 Tercero, R., **25**, 449  
 Thaulow, N., **22**, 1148; **26**, 309; **27**, 811; **28**, 153, 1087  
 Theodossis, D., **30**, 1679  
 Thevenin, G., **27**, 1533; **29**, 1605  
 Thienel, K.-Ch., **26**, 1409  
 Thirupathayya, K.M., **26**, 397  
 Thomas, G., **24**, 1245  
 Thomas, J.J., **28**, 231, 897  
 Thomas, M., **26**, 513, 1603; **30**, 339  
 Thomas, M.D.A., **23**, 1317; **29**, 487, 827, 1129, 1207, 1915; **30**, 1063, 1139, 1215  
 Thompson, A., **26**, 949  
 Thompson, G.E., **27**, 777; **28**, 125, 221  
 Thompson, J.S., **25**, 658  
 Thomson, M.L., **24**, 1359; **25**, 1679  
 Tilley, R.J.D., **29**, 975  
 Tin-Loi, F., **29**, 1055  
 Tittlebaum, M.E., **23**, 833  
 Tixier, R., **27**, 1569  
 Tkalcic-Ciboci, B., **21**, 1015  
 Tkálčec, E., **29**, 819, 2017; **30**, 145, 333, 833, 1335  
 Tognazzi, C., **30**, 83  
 Tokyay, M., **27**, 1281; **29**, 531, 743, 1737  
 Tolêdo Filho, R.D., **28**, 555; **29**, 1597  
 Toman, J., **27**, 415; **30**, 1267  
 Tomková, V., **23**, 693  
 Tonella, E., **28**, 75  
 Tong, D., **26**, 1505  
 Tong, L., **24**, 150; **25**, 470; **27**, 107, 321, 329; **28**, 1085  
 Tong, Y., **21**, 355, 509  
 Tonus, S., **28**, 613  
 Topçu, I.B., **25**, 304, 387, 1385; **26**, 521; **27**, 15, 177, 1135, 1817, 1893  
 Torii, J., **25**, 759, 1791  
 Torii, K., **24**, 361; **29**, 585  
 Torrenti, J.-M., **23**, 1340; **24**, 641; **25**, 1123; **26**, 1257; **30**, 83, 1947  
 Torrents, J.M., **28**, 1325; **30**, 585  
 Toumbakari, E.-E., **29**, 867  
 Toussaint, N., **22**, 331  
 Toutanji, H., **28**, 115, 961  
 Toutanji, H.A., **23**, 618; **25**, 1591; **29**, 497  
 Touza, J.-Y.L., **30**, 915  
 Trabanelli, G., **30**, 635  
 Tran, B., **30**, 117  
 Traveria, A., **26**, 1199  
 Trejo, D., **24**, 1245  
 Trettin, R., **21**, 757  
 Trezza, M.A., **30**, 137  
 Triki, E., **22**, 56; **26**, 253  
 Tritt-Goc, J., **30**, 931  
 Tritthart, J., **22**, 129, 399; **23**, 1095  
 Trivedi, P., **22**, 339

- Trottier, J-F., **21**, 158  
 Truc, O., **30**, 217, 1581  
 Trunk, B., **29**, 855  
 Trybalska, B., **27**, 51  
 Tsai, Y.-N., **23**, 773  
 Tsakiridis, P., **25**, 1726  
 Tsang, M.K.C., **27**, 279  
 Tsay, D.-S., **28**, 1363  
 Tsiatas, A., **28**, 335  
 Tsimas, S., **22**, 95  
 Tsiivilis, S., **22**, 95; **23**, 651; **25**, 9, 948; **27**, 673; **28**, 335; **30**, 1073, 1679  
 Tsuji, Y., **26**, 781  
 Tsuyuki, N., **30**, 1435  
 Tucek, A., **21**, 21  
 Tüfekçi, M., **27**, 1713  
 Tulgar, A.N., **29**, 637  
 Tulun, T., **27**, 227  
 Tumidajski, P.J., **24**, 1359; **25**, 924, 1159, 1556; **26**, 529, 539, 551, 557, 697, 817, 1301; **27**, 965; **28**, 643  
 Tura, J.M., **26**, 1199  
 Turc, I., **25**, 924  
 Türker, F., **25**, 1360; **26**, 1287; **27**, 205; **29**, 537; **30**, 1189  
 Türker, P., **28**, 1217; **29**, 743  
 Tveit, A.B., **29**, 645  
 Tzevelekos, K.P., **30**, 1151
- Uchikawa, H., **22**, 1115; **25**, 353; **26**, 101; **27**, 37, 1453  
 Ujhelyi, J.E., **21**, 345  
 Ukrainczyk, V., **25**, 187  
 Umemura, Y., **30**, 1435  
 Ünal, M., **30**, 497  
 Unčík, S., **27**, 1731  
 Uno, Y., **21**, 676; **24**, 55  
 Unsworth, H.P., **25**, 1627  
 Upadhyay, S.N., **27**, 1037  
 Usharov-Marshak, A.V., **28**, 1289
- Valenti, G.L., **23**, 1205; **24**, 393; **25**, 113; **26**, 1673  
 Valič, M.I., **30**, 1633  
 Vallée, V.-G., **28**, 1147; **29**, 795  
 Valls, S., **30**, 1671  
 Van Breugel, K., **25**, 319, 522  
 van Breugel, K., **27**, 1465, 1489; **30**, 1911  
 Van Damme, H., **29**, 1441  
 Van Den Abeele, K., **30**, 1453  
 van der Sloot, H.A., **30**, 1079  
 van Deventer, J.S.J., **29**, 1189  
 van Eijk, R.J., **28**, 815; **30**, 1801
- Van Gemert, D., **24**, 765; **29**, 867; **30**, 623  
 van Jaarsveld, J.G.S., **29**, 1189  
 van Mier, J.G.M., **21**, 1; **28**, 103  
 Van Nieuwenburg, D., **23**, 442; **26**, 1717  
 Van Rickstal, F., **24**, 765  
 Van Selst, R., **23**, 1029  
 Vandewalle, N., **29**, 209  
 Vanková, S., **29**, 761  
 Varela, M.T.B., **25**, 572, 870  
 Vargas, G., **29**, 623  
 Vasileva, V., **26**, 1065  
 Vassie, P.R., **28**, 391  
 Vassie, P.R.W., **25**, 989; **26**, 851  
 Vazifdar, R., **28**, 1537  
 Vázquez, E., **30**, 1671  
 Vázquez, T., **24**, 1177; **25**, 1131 **26**, 457, 1361; **27**, 1203; **29**, 997, 1673; **30**, 1625  
 Velichko, V.A., **21**, 205  
 Vempati, R.K., **24**, 1153; **25**, 671  
 Venkobachar, C., **25**, 1639  
 Verburg, R., **29**, 719  
 Vernet, C., **30**, 1861  
 Verschoore, R., **26**, 1717  
 Verselder, H.J., **26**, 1717  
 Verstraete, W., **30**, 623  
 Vervuurt, A., **28**, 103  
 Vetter, G., **22**, 369  
 Veža, D., **30**, 1655  
 Viguier, C., **23**, 663  
 Vilardell, J., **28**, 93  
 Vilchez, M.C.G., **26**, 327  
 Vilchez, M.C.G., **24**, 776  
 Vilchez, M.C. González, **25**, 110  
 Vilardell, J., **28**, 93  
 Vilchez, M.C.G., **26**, 327  
 Vilchez, M.C.G., **24**, 776; **26**, 327  
 Villarreal, R.R., **28**, 41; **29**, 969  
 Vincke, E., **30**, 623  
 Vipulanandan, C., **22**, 621; **23**, 792; **26**, 895; **28**, 1429; **30**, 385  
 Viqueira, E., **29**, 893  
 Viqueira-Pérez, E., **26**, 1157; **28**, 209  
 Virlet, J., **27**, 1581  
 Vishwamittar, **21**, 484  
 Vitale, A., **26**, 861  
 Vitaliani, R.V., **23**, 761; **25**, 1703  
 Vito, B. de, **24**, 393; **25**, 1803  
 Vitorge, P., **22**, 419  
 Vivekanandam, K., **27**, 817  
 Vlachou, P.-V., **27**, 869; **29**, 27  
 Vlachou, V., **30**, 1551  
 Vlana, M., **23**, 1351  
 Vočka, R., **30**, 521  
 Vodák, F., **27**, 415
- Volkwein, A., **23**, 843  
 Vondruska, M., **29**, 761  
 Vondruška, M., **30**, 993  
 Vrbos, N., **23**, 177  
 Vuk, T., **30**, 1709  
 Vyncke, J., **24**, 1267
- Wagner, F., **25**, 1621  
 Wainwright, P.J., **25**, 1445  
 Walden, P.J., **22**, 181; **23**, 242; **29**, 515  
 Waldron, P., **30**, 1225  
 Waller, V., **28**, 285  
 Wan, C.C., **24**, 319  
 Wang, A., **26**, 943; **27**, 685; **29**, 1393, 1721  
 Wang, D., **27**, 493; **30**, 1841  
 Wang, G., **21**, 1083; **22**, 755  
 Wang, H., **21**, 647; **22**, 193; **23**, 973  
 Wang, J., **24**, 1463  
 Wang, J.-F., **24**, 801  
 Wang, J.-Z., **29**, 1875; **30**, 1245  
 Wang, J.G., **24**, 735  
 Wang, K., **27**, 381, 1899; **28**, 1195; **30**, 465  
 Wang, K.L., **29**, 1411  
 Wang, N., **24**, 1286; **26**, 363  
 Wang, Q., **29**, 1549  
 Wang, S., **30**, 385  
 Wang, S.-D., **24**, 1033  
 Wang, S.D., **25**, 561  
 Wang, S.X., **28**, 649  
 Wang, S.Y., **26**, 895  
 Wang, T., **25**, 1647  
 Wang, X., **24**, 1245  
 Wang, Y., **26**, 805, 1443; **28**, 1237, 1353, 1373; **29**, 427, 2013; **30**, 45  
 Wang, Y.Y., **24**, 319  
 Ward, M.A., **21**, 691  
 Warren, C.J., **24**, 1515  
 Wasserman, R., **27**, 525  
 Watanabe, R., **30**, 253, 1435  
 Watanabe, Y., **25**, 709, 715  
 Watt, D.F., **25**, 1225  
 Way, S.J., **22**, 915; **23**, 471, 1003; **24**, 387  
 Weaver, P.J., **21**, 1148  
 Weber, L., **29**, 1969  
 Wee, T.H., **25**, 709, 715  
 Wei, S., **22**, 621  
 Wen, S., **29**, 445, 961, 1989; **30**, 327, 661, 1289, 1295, 1979  
 Wen, Z., **29**, 467  
 Wenda, R., **23**, 422  
 Weng, C.C., **22**, 641; **24**, 1335  
 Werner, K.C., **30**, 1443  
 West, P.B., **27**, 551; **28**, 1833



- Wetherhold, R.C., **27**, 437  
Weyers, R.E., **23**, 1047; **28**, 365  
Wheat, H.G., **22**, 103  
White, C.A., **23**, 241  
White, K.W., **28**, 1429  
Whittman, F.H., **24**, 1165  
Wick, S.O., **30**, 1759  
Wieker, W., **21**, 757; **22**, 1161; **23**, 321  
Wilberley, S.E., **23**, 1259  
Wild, S., **25**, 1567; **26**, 1537, 1545; **27**, 137, 697, 785; **28**, 83; **29**, 975, 1781; **30**, 757  
Wilding, C.R., **22**, 299  
Wilding, L.P., **29**, 1433  
Williams, D.A., **29**, 1491  
Willis, K.L., **28**, 1695  
Wilson, D.J., **28**, 611  
Wilson, M.A., **29**, 1743  
Winkler, A., **22**, 1161  
Winslow, D., **25**, 147, 769  
Winslow, D.N., **24**, 25, 1025, 1569  
Wirquin, E., **30**, 301  
Witakowski, P., **28**, 1629  
Wittmann, F.H., **21**, 1118; **22**, 559; **29**, 855  
Wong, Y.L., **28**, 271; **29**, 1905; **30**, 447, 747  
Wu, A., **30**, 1169  
Wu, B., **29**, 1393  
Wu, C.M.L., **30**, 865  
Wu, H., **23**, 640  
Wu, H.C., **29**, 201  
Wu, K., **24**, 1185; **27**, 115; **29**, 1887; **30**, 1495  
Wu, K.-R., **29**, 1983; **30**, 981  
Wu, L., **26**, 1109  
Wu, X., **21**, 16, 91; **23**, 462, 1253; **24**, 133, 159; **25**, 1647; **27**, 983; **29**, 389, 1103; **30**, 45, 645, 881, 1239, 1313, 1381, 1807  
Wu, Y., **25**, 1417; **28**, 245  
Wu, Y.H., **30**, 599  
  
Xi, Y., **27**, 75  
Xiao, C.Z., **24**, 1  
Xie, P., **22**, 23, 597, 612, 631, 769, 833, 845; **23**, 157, 359, 531, 581, 675, 747, 853, 1007; **24**, 38, 86, 89, 92, 231, 267, 433, 682, 704, 1015, 1055, 1085, 1428; **25**, 29, 63, 223, 1111; **28**, 887  
Xie, Y., **30**, 1489  
Xin, C., **30**, 77  
Xiuji, F., **27**, 1439  
Xu, A., **22**, 515, 605; **24**, 375; **27**, 959  
Xu, D., **30**, 1841  
Xu, G., **27**, 315, 1791; **28**, 1; **30**, 683  
Xu, G.J.Z., **25**, 1225  
Xu, X., **30**, 1983  
Xu, Y., **25**, 893; **27**, 75, 1841; **29**, 451, 773, 1107, 1117; **30**, 59, 241, 1175, 1305  
Xu, Z., **22**, 612, 769; **23**, 187, 359, 377, 462, 531, 675, 853, 951, 1007, 1253; **26**, 663  
Xuequan, W., **30**, 45  
  
Yalcyn, H., **26**, 1593  
Yamada, K., **29**, 1159; **30**, 197  
Yamamoto, D., **22**, 815  
Yamamoto, T., **30**, 1113  
Yan, A., **29**, 1983; **30**, 981  
Yan, C., **26**, 9, 657  
Yan, H., **29**, 423  
Yan, H.D., **29**, 1519  
Yan, L., **30**, 391, 403  
Yan, P., **28**, 135; **29**, 349; **30**, 275  
Yan, P.-Y., **29**, 957  
Yang, C., **30**, 645, 1239  
Yang, C.C., **26**, 83, 1567; **27**, 1021; **28**, 727  
Yang, J., **25**, 1086; **26**, 1109  
Yang, J.L., **27**, 1179  
Yang, L., **21**, 16; **24**, 133  
Yang, N., **21**, 31; **24**, 150; **27**, 407; **30**, 1013  
Yang, Q., **29**, 45, 389; **30**, 1313, 1807, 1993  
Yang, R., **26**, 1451, 1649; **27**, 631; **29**, 17; **30**, 667, 775, 1321  
Yang, W., **29**, 349; **30**, 275  
Yang, Y., **27**, 1419  
Yankelevsky, D., **27**, 1099  
Yao, W., **30**, 981, 1495  
Yazici, B., **27**, 1271  
Ye, X., **24**, 1286  
Yeginobali, A., **25**, 647  
Yeh, I.-C., **28**, 1797  
Yeh, W., **28**, 1071  
Yen, S., **21**, 16  
Yilmaz, V.T., **21**, 765  
Yilmaz, A.B., **27**, 1271  
Yilmaz, V.T., **22**, 663; **23**, 152, 603, 1380; **24**, 313  
Yin, S., **29**, 467  
Yip, W.K., **28**, 33, 499  
Yogendran, V., **21**, 691  
Yool, A.I.G., **28**, 1417  
Yoon, E.S., **29**, 193  
Yoshida, H., **25**, 835, 863; **26**, 1801  
Yoshida, T., **26**, 1801  
Yoshino, A., **25**, 1647  
  
You, Y., **28**, 135; **29**, 349  
Youn, D., **23**, 122  
Young, F., **30**, 161, 465  
Young, J.F., **23**, 480; **24**, 1025; **25**, 147  
Young, K.E., **27**, 127  
Youns, M.N., **21**, 426  
Yu, J., **27**, 1085  
Yu, Q., **27**, 1439; **28**, 1201; **29**, 45  
Yu, S.W., **21**, 581; **25**, 819  
Yu, W., **30**, 267  
Yuan, F., **30**, 643, 973  
Yuan, Q., **30**, 1489  
Yue, Y., **27**, 1085; **30**, 1983  
Yujang, W., **30**, 45  
Yuko, T., **30**, 1113  
Yusof, K.M., **21**, 601; **24**, 661; **29**, 785, 1427  
Yüzer, N., **25**, 1360; **26**, 1287; **27**, 205; **29**, 537  
  
Zaghloul, M.S., **21**, 426  
Zain, M.F.M., **29**, 619, 785, 1427; **30**, 1283, 1501  
Zamorani, E., **22**, 331, 359  
Zang, C., **26**, 943  
Zanni, H., **23**, 1169; **26**, 93  
Zanni-Thévenau, H., **23**, 169  
Zelić, J., **29**, 819, 2017; **30**, 145, 333, 833, 1335, 1655  
Zeng, Y., **21**, 31  
Zenone, F., **21**, 120; **25**, 1803  
Zeybek, M.S., **28**, 605  
Zhang, B., **27**, 115; **28**, 699  
Zhang, C., **26**, 1203; **27**, 685; **29**, 1365, 1393, 1721  
Zhang, D., **29**, 1887, 1983; **30**, 981  
Zhang, G., **29**, 1549  
Zhang, H., **26**, 1307, 1315, 1505  
Zhang, J., **28**, 439  
Zhang, J.Q., **28**, 649  
Zhang, J.-Z., **27**, 853; **28**, 665, 777  
Zhang, M.H., **25**, 1165, 1713; **26**, 963; **27**, 1861; **28**, 1555, 1783; **30**, 1037  
Zhang, M.-H., **21**, 800, 1006; **22**, 47  
Zhang, N., **27**, 685; **29**, 1393, 1549, 1721  
Zhang, S., **30**, 1807, 1993  
Zhang, T., **24**, 1534; **25**, 1535; **26**, 907  
Zhang, X., **25**, 1086; **27**, 1419; **30**, 827  
Zhang, Y., **26**, 1753; **27**, 1093, 1885; **28**, 171, 309  
Zhang, Y.M., **29**, 1519  
Zhao, T.J., **28**, 7  
Zhao, X., **26**, 1753  
Zhao, Y., **28**, 635, 1057; **29**, 839, 1455  
Zhao, Z., **30**, 1983



Zheng, L., **25**, 769; **29**, 1085  
 Zhong, J., **29**, 467  
 Zhou, F.P., **25**, 177, 543; **28**, 1725; **29**, 1905  
 Zhou, H., **23**, 1253  
 Zhou, S., **30**, 1489  
 Zhou, X., **27**, 1293; **30**, 227  
 Zhou, Z.H., **28**, 7  
 Zhu, B., **29**, 1835; **30**, 1807  
 Zhu, H., **25**, 1647; **29**, 1103  
 Zhu, J.Q., **28**, 7

Zhu, J.-Q., **29**, 957  
 Zhu, M., **27**, 437, 1829  
 Zhu, P., **30**, 1313  
 Zhu, W., **27**, 1701; **30**, 1299  
 Zhu, W.Z., **28**, 1209  
 Zibara, H., **30**, 1215  
 Zimmerman, R.W., **27**, 1113  
 Zisopoulos, P.M., **30**, 153  
 Zivanovic, B., **22**, 139  
 Živica, V., **23**, 1215

Živica, V., **24**, 1475; **27**, 1225, 1825; **28**, 13  
 Zizi, Z., **23**, 1340  
 Zmikić, A., **24**, 743, 948  
 Zoltán Juhász, A., **26**, 1843  
 Zomoza, A., **29**, 1061  
 Zou, R., **24**, 1383  
 Zouridakis, N.M., **30**, 1151  
 Zuber, B., **30**, 1929  
 Zysk, K.-H., **21**, 262

## KEYWORD INDEX

$\alpha$ -CaSO<sub>4</sub>·0.5H<sub>2</sub>O, **25**, 945  
<sup>27</sup>Al, **25**, 1435  
<sup>27</sup>Al MNR, **27**, 501  
 AAC, **29**, 855  
 AARS, **30**, 1013  
 AASHTO Test, **23**, 724  
 Abrams' Law, **26**, 933  
 Abrasion, **23**, 69  
 Abrasion Resistance, **24**, 303; **27**, 1149; **29**, 1215  
 Absorption, **25**, 999, 1423; **26**, 1423, 1761  
 Absorptivity, **24**, 1390  
 AC Impedance, **23**, 359, 531, 581, 675, 853, 1007; **24**, 86, 89, 92, 704, 1097; **29**, 1085, 1685, 1689  
 AC Impedance Spectroscopy, **22**, 833; **23**, 157  
 Accelerated, **29**, 1541  
 Accelerated Chloride Ion Diffusion Test, **29**, 585  
 Accelerated Evaluation, **26**, 203  
 Acceleration, **23**, 442; **24**, 1534; **28**, 1595; **29**, 249, 537, 1737; **30**, 371, 571, 1375, 1815  
 Accelerators, **26**, 1179  
 Acetate, **26**, 1593  
 Acetic Acid, **24**, 551, 1495; **25**, 477; **26**, 475  
 Acid Attack, **26**, 1717; **29**, 2005  
 Acid Corrosion, **30**, 803  
 Acid Deposition, **28**, 19  
 Acid Resistance, **24**, 361; **29**, 1215, 1681  
 Acidic Reaction, **24**, 1327  
 Acids, **27**, 1681, 1731; **30**, 481  
 Acoustic Emission, **21**, 545, 737; **22**, 642; **24**, 1335  
 Actinide Simulants, **30**, 1619

Activation, **25**, 332, 417; **26**, 1351; **30**, 881  
 Activation Energy, **24**, 715  
 Activators, **27**, 51; **30**, 51, 607, 645, 1239  
 Active Thin Sections, **29**, 281  
 Activity, **27**, 989; **28**, 63  
 Activity Coefficients, **24**, 1515  
 Additions, **23**, 46  
 Adhesion, **21**, 169, 727; **29**, 95; **30**, 1421  
 Adhesion Strength, **29**, 909  
 Adiabatic Temperature, **28**, 285  
 Adiabatic Temperature Rise, **29**, 553  
 Admixture Type, **25**, 353  
 Admixtures, **21**, 401, 614, 683; **22**, 1115; **23**, 973; **24**, 73, 353, 527, 1133, 1177, 1455; **25**, 281, 387; **26**, 1083; **27**, 83, 805, 1357; **28**, 577, 605, 629, 737, 969, 1101, 1335, 1775; **29**, 9, 223, 479, 591, 699, 761, 899, 909, 1103, 1271, 1743, 1769, 1847; **30**, 241, 511, 683, 827, 993, 1175, 1263, 1349, 1367, 1421  
 Adsorbents, **22**, 393, 399  
 Adsorption, **22**, 439, 725, 1115; **23**, 1153; **27**, 193; **28**, 947, 1753  
 Age, 167; **29**, 99, 591, 777, 923, 1159, 1769; **30**, 267, 823, 887, 993, 1615, 1767, 1841  
 Adsorption Capillary, **29**, 339  
 AE, **30**, 1495  
 Aerated Concrete, **21**, 655; **24**, 830; **27**, 589; **30**, 457  
 Aeration, **25**, 1621  
 AFm, **25**, 271; **27**, 1167  
 AF<sub>m</sub> phases, **29**, 861  
 AF<sub>s</sub>, **22**, 229  
 Ag/AgCl Sensors, **26**, 1157

Age, **26**, 465  
 Aggravation, **21**, 647  
 Aggregate Effect, **23**, 283  
 Aggregate Geochemistry, **29**, 1019  
 Aggregate Size, **21**, 737, 999; **26**, 63; **29**, 1393  
 Aggregate Size Grading, **29**, 1393  
 Aggregate Type Concrete, **27**, 165  
 Aggregate Volume Concentration, **29**, 1995  
 Aggregates, **21**, 169, 535, 718, 727, 745, 983; **22**, 597, 990; **25**, 293, 1264, 1385; **26**, 993; **27**, 345; **28**, 635, 921, 1037, 1057, 1353, 1417, 1453, 1725; **29**, 331, 607, 1061, 1277, 1289, 1403, 1835, 1863, 1905, 1983; **30**, 59, 351, 683, 1105, 1413, 1841  
 Aging, **25**, 919; **27**, 1701; **29**, 1149, 1249; **30**, 977, 1255, 1741, 1869  
 Aging Effects, **24**, 1277  
 Agitation, **27**, 721  
 Agricultural Wastes, **30**, 13  
 Air Classification, **25**, 449  
 Air Curing, **29**, 497  
 Air-cyclosizing, **29**, 765  
 Air Entrainment, **27**, 193  
 Air-Entraining Agent, **30**, 1313  
 Air Entrainment, **30**, 1037  
 Air Lime Mortars, **29**, 1749  
 Air Suppression, **27**, 235  
 Air Voids, **27**, 171  
 Air Void Spacing, **24**, 1267  
 Air Void System, **29**, 273  
 Airport Pavement, **27**, 321  
<sup>27</sup>Al-27 NMR, **27**, 501  
 Al-27 NMR, **27**, 303  
 Alhambra, **26**, 825

- Alignment, **26**, 1245  
Alinite, **24**, 49, 1413  
Alinite Cement, **21**, 1129  
Alinite Clinker, **23**, 1268  
Alite, **23**, 1078; **27**, 1123; **28**, 53  
Alkali, **21**, 745; **22**, 653; **29**, 1893  
Alkali-Activated Cement, **25**, 561; **29**, 113, 249, 455, 459, 467, 607, 659, 713, 997, 1313, 1323, 1619; **30**, 791, 963, 1367, 1375, 1401, 1641, 1879  
Alkali-Activated Slags, **21**, 101; **22**, 281; **24**, 133, 813, 1033; **26**, 21, 439, 1789; **30**, 803, 849  
Alkali-Activated Slag Cement, **21**, 16  
Alkali Activation, **27**, 359, 1825; **28**, 197  
Alkali Activation Slag, **23**, 1253  
Alkali-Aggregate Reaction, **21**, 575, 853; **22**, 949; **23**, 309, 1229; **24**, 473; **26**, 21, 153; **27**, 1901; **28**, 25, 189, 251, 411; **29**, 1271, 1277, 1281, 1289, 1393, 1915; **30**, 339, 419, 1063  
Alkali Bypass Dust, **25**, 883  
Alkali-Calcium Silicate Hydrates, **22**, 915  
Alkali Carbonate, **26**, 1661  
Alkali-Carbonate Reaction, **24**, 62; **25**, 470; **26**, 1579; **27**, 321, 329  
Alkali Contents, **22**, 990  
Alkali-Dolomite Reaction, **23**, 1040, 1115  
Alkali Metal Salts, **23**, 177  
Alkali Migration, **23**, 951  
Alkaline Earth Chlorides, **25**, 1523  
Alkaline Hydrolysis, **30**, 1689  
Alkali Reactivity, **24**, 1073  
Alkali Release, **25**, 841  
Alkali-Rich Droplets, **22**, 1148  
Alkalis, **23**, 1268, 1283; **28**, 1537; **29**, 71, 187, 361, 467, 1753; **30**, 1801, 1987  
Alkali-Silica Expansion, **24**, 1305  
Alkali-Silica Gels, **23**, 811; **26**, 309  
Alkali-Silica Reactions, **21**, 61, 647; **22**, 15, 609, 941, 1148, 1170; **23**, 93, 471, 973, 1121; **24**, 73, 83, 221, 1111, 1317, 1327; **25**, 1647; **26**, 623, 1809; **27**, 1379, 1407; **30**, 1987, 1139  
Alkali-Silica Reactivity, **23**, 55  
Alkali Silicate Admixture, **23**, 1215  
Alkali-Slag Cements, **21**, 92; **25**, 1333  
Alkali Sulfate, **30**, 887  
Alteration, **27**, 619  
Aluminate, **26**, 1203, 1661; **27**, 1393  
Aluminate Cements, **23**, 177; **27**, 501, 1343  
Aluminoferrite, **25**, 863  
Aluminous Cement, **25**, 961  
Aluminous Cement Mortar, **21**, 635  
Aluminosilicate, **25**, 1713  
Aluminium Additives, **29**, 1759  
 $Al_2O_3$ , **23**, 1056  
 $Al_2O_3$  Content, **25**, 1581  
Ammonium Salt Solutions, **25**, 1209  
Ammonium Sulfate, **23**, 13  
Amorphous Material, **29**, 527, 1189; **30**, 437, 1023, 1097  
Analcite, **29**, 1759  
Analysis, **21**, 963, 1118; **22**, 445, 695; **23**, 1085; **26**, 1695, 1821  
Analytical Electronmicroscopy, **25**, 1369  
Ancient Mortars, **25**, 1755; **26**, 841; **27**, 227; **30**, 1609  
Angle Variation, **24**, 1509  
Anhydrite, **25**, 332; **26**, 1505; **29**, 1173; **30**, 993  
Anhydrite Cement, **24**, 99  
Anisotropy, **25**, 863; **26**, 1801  
Annealing Temperature, **21**, 426  
Anodic Dissolution, **24**, 203  
Anodic Polarization, **23**, 1418  
Anomalies, **24**, 937  
Anomalous Results, **24**, 1255  
ANOVA, **29**, 1749  
Apatite, **27**, 407  
Apatite Phosphogypsum, **24**, 99  
Apparent Energy Activation, **30**, 301  
Apparent Viscosity, **29**, 1791  
Application Time, **24**, 1463  
Applied Load, **24**, 1475  
Aqueous Polymers, **24**, 1199  
Aragonite Fibers, **26**, 1775  
Archeology, **22**, 1011  
Argillaceous, **24**, 1073  
Arrhenius Relationship, **30**, 1395  
Ash, **21**, 262  
Ashes, **25**, 1369  
Aspect Ratio, **23**, 1467  
ASR, **27**, 1553; **28**, 13  
ASR Aggregates, **26**, 663  
ASR Cracking, **27**, 107  
ASR Expansion, **25**, 1225  
Atmosphere, **21**, 127  
Atmospheric, **24**, 661  
Atmosphere Simulation, **27**, 777  
Atomic Force Microscope, **27**, 1451  
Attack, **22**, 707, 903  
Autoclave Temperature, **28**, 1  
Autoclaved Aerated Concrete, **30**, 1741  
Autoclaved Curing, **30**, 1993  
Autoclaving, **21**, 655; **24**, 830; **25**, 71, 91, 243, 249, 1512, 1621; **26**, 1109, 1399; **27**, 75, 589, 1073  
Autogenous, **29**, 567  
Autogenous Shrinkage, **25**, 281, 288, 1457, 1633; **27**, 245, 1489; **29**, 611; **30**, 915  
Automated Imaging, **25**, 605  
Avrami Equation, **30**, 1853  
 $\beta$ - $C_2S$ , **21**, 355; **24**, 966; **27**, 989  
 $\beta$ - $C_2S$  Hydration, **23**, 1065  
 $\beta$ - $Ca_2SiO_4$ , **22**, 743; **24**, 319; **26**, 1179  
 $BaAl_2O_4$ , **25**, 1257; **27**, 979  
 $BaAl_2O_4$  Formation, **25**, 86  
Backfill, **25**, 933  
Backscatter, **21**, 388  
Backscattered Electron, **23**, 576  
Backscattered Electron Imaging, **25**, 627; **29**, 1131; **30**, 849, 1517, 1941  
Bagasse, **30**, 1485  
 $BaO$ , **25**, 1417; **29**, 1857  
Barium Sulfate, **30**, 1435  
Basalt, **24**, 1317; **26**, 1689; **26**, 363  
Bases, **26**, 1689; **28**, 401  
Beams, **26**, 363  
Belite, **23**, 599, 1078; **24**, 49; **25**, 809; **27**, 51  
Belite Cements, **26**, 1213  
Belite Clusters, **25**, 835  
Bending, **25**, 1655; **27**, 115, 1031  
Bending Strength, **28**, 955; **29**, 201, 631, 983  
Bentonite, **27**, 395  
BET Isotherm, **29**, 1799  
BFS, **30**, 1239  
Biaxial Stress, **26**, 1409  
Bi-Electrodes, **24**, 401  
Binder, **28**, 13  
Binder Content, **26**, 1761  
Binder Type, **22**, 1047; **24**, 203  
Binders, **27**, 1141, 1179; **28**, 13  
Binding Capacity, **23**, 247  
Biogenic Sulfuric Acid, **30**, 623  
Biosorbent, **25**, 1639  
Bituminous Emulsion, **21**, 558  
Black Meal Process, **23**, 1185  
Blaine, **21**, 709  
Blast-Furnace Slag, **22**, 181; **29**, 171  
Blast-Furnace Slag Aggregate, **24**, 413  
Blast-Furnace Slag Cement, **29**, 143; **30**, 371

- Bleeding, **25**, 1445; **27**, 721; **28**, 907; **29**, 261, 813  
 Blended Cement Concrete, **22**, 1089  
 Blended Cements, **22**, 497; **23**, 1223; **24**, 1403; **25**, 819, 1023; **27**, 487, 995, 1501; **28**, 299, 1209, 1519, 1555; **29**, 553, 603, 623, 1387, 1605; **30**, 345, 561, 703, 1037, 1225, 1395, 1485  
 Blended High-Alumina Cements, **22**, 1101  
 Blends, **24**, 285, 1177  
 Blockworks, **30**, 13  
 Boltzmann-Matano Method, **25**, 1556  
 Bond, **27**, 1811; **28**, 477  
 Bond Degradation, **26**, 267  
 Bond Performance, **27**, 1085  
 Bond Strength, **22**, 23, 551; **25**, 1397; **26**, 189, 1007, 1499; **27**, 643, 679, 1805, 1829; **28**, 167, 487, 783, 787; **29**, 627, 781, 1019, 1067, 1905, 1983; **30**, 253, 281, 371, 781, 937  
 Bonding, **23**, 431, 422; **25**, 491, 497; **27**, 1099; **29**, 805  
 Bond Slip, **26**, 657  
 Borates, **21**, 663  
 Boric Acid Sludge, **25**, 1381  
 Borogypsum, **22**, 841; **25**, 1381; **26**, 1737  
 Bottom Ash, **29**, 1387  
 Brazilian Test, **26**, 125  
 Breakage, **30**, 473  
 Brick, **27**, 1829  
 Bridging Stress, **21**, 1118  
 Brown Coal, **23**, 507  
 Brownmillerite, **26**, 77  
 BSE, **22**, 695  
 Bulk Characteristics, **24**, 109  
 Bulk Paste, **24**, 95  
 Bundled Fibers, **24**, 695  
 Burnability, **26**, 457, 1361, 1473  
 Burning Conditions, **21**, 1176; **23**, 933  
 By-Products, **23**, 1259; **25**, 113; **27**, 1641  
 By-Product Gypsum, **24**, 601  
<sup>137</sup>Cs, **25**, 311  
 3CaO·Al<sub>2</sub>O<sub>3</sub>, **25**, 1679  
 3CaO·3Al<sub>2</sub>O<sub>3</sub>·CaSO<sub>4</sub>, **25**, 572; **29**, 1305  
 3CaO·3Al<sub>2</sub>O<sub>3</sub>·SrSO<sub>4</sub>, **26**, 955  
 3CaO·SiO<sub>2</sub> Hydration, **24**, 127  
 4CaO·Al<sub>2</sub>O<sub>3</sub>·Mn<sub>2</sub>O<sub>3</sub>, **20** CaO-SiO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub>-Fe<sub>2</sub>O<sub>3</sub>-SO<sub>3</sub>, **23**, 1331, 1357  
 11CaO·7Al<sub>2</sub>O<sub>3</sub>·CaF<sub>2</sub>, **27**, 1439  
 (3-x)CaO·xBaO·3Al<sub>2</sub>O<sub>3</sub>·CaSO<sub>4</sub>, **30**, 77  
 CA<sub>2</sub>, **22**, 1019  
 C<sub>3</sub>A, **22**, 605, 1130; **24**, 503; **26**, 717; **27**, 369, 917  
 C<sub>4</sub>A<sub>3</sub>S, **23**, 693; **26**, 1315  
 C<sub>2</sub>S, **21**, 509, 757; **23**, 693; **27**, 369  
 C<sub>3</sub>S, **21**, 509; **27**, 917; **29**, 1441; **30**, 1361  
 C<sub>3</sub>S Hydration, **23**, 169; **27**, 665  
 C<sub>3</sub>SiO<sub>5</sub>, **29**, 545  
 Ca<sup>2+</sup>, **23**, 294  
 CA Cements, **22**, 783  
 Ca Phosphate Cements, **23**, 1409  
 Ca Sulfoaluminate, **26**, 743  
 Ca Sulfoaluminate-Based Cements, **23**, 1205  
 Ca Sulphoaluminate Hydrates, **21**, 1023  
 CaAl<sub>2</sub>O<sub>4</sub>, **27**, 979  
 Ca<sub>3</sub>Al<sub>2</sub>O<sub>6</sub>, **25**, 721; **28**, 1713; **29**, 63, 87, 651; **30**, 1073  
 Ca<sub>3</sub>Al<sub>2</sub>O<sub>6</sub> Hydration, **24**, 1359  
 CaCl<sub>2</sub>, **25**, 15  
 CaCl<sub>2</sub> Accelerator, **25**, 948  
 CaCO<sub>3</sub>, **21**, 885; **28**, 1655; **29**, 819, 1815; **30**, 1073, 1151, 1413, 1663, 1961  
 CaCO<sub>3</sub> Decomposition, **25**, 477, 955  
 CaCO<sub>3</sub> Mortar, **30**, 481  
 CaCrO<sub>4</sub>, **30**, 1361  
 CaF<sub>2</sub>, **25**, 376  
 C<sub>4</sub>AF, **22**, 27  
 Ca Hemicarboaluminate, **24**, 563  
 C<sub>3</sub>A Hydration, **21**, 809, 885  
 Ca<sup>+</sup> Ion Solubility, **25**, 1023  
 Cadmium, **27**, 337  
 Calcination, **25**, 1691; **30**, 7  
 Calcined Alumstone, **30**, 1169  
 Calcined Brick Clay, **27**, 697  
 Calcined Gypsum, **30**, 1169  
 Calcined Phosphogypsum, **25**, 752  
 Calcining, **27**, 1513  
 Calcium, **24**, 1229  
 Calcium Aluminate Cement, **25**, 91; **28**, 381; **29**, 429, 1215, 1881, 1969; **30**, 307, 1023, 1057, 1689  
 Calcium Aluminate Hydrates, **27**, 1307  
 Calcium Aluminate Sulfate, **27**, 7  
 Calcium Aluminates, **23**, 1, 294; **25**, 1347; **28**, 1357; **29**, 121, 731  
 Calcium Aluminoferrite, **24**, 150, 923; **25**, 581; **29**, 651, 679  
 Calcium Aluminosilicate Hydrate, **30**, 7  
 Calcium Hydroxide, **24**, 1044  
 Calcium Leaching, **30**, 1961  
 Calcium Magnesium Acetate, **25**, 617  
 Calcium-Magnesium Acetate Deicers, **30**, 1389  
 Calcium Nitrate, **25**, 1766; **26**, 1131  
 Calcium Phosphate Cement, **29**, 1969  
 Calcium-Silicate-Hydrate (C-S-H), **27**, 83, 1791; **29**, 37, 361, 789, 1061, 1131, 1149, 1167, 1411, 1561, 1759, 1915; **30**, 101, 371, 817, 855, 1185  
 Calcium Sulfate, **27**, 369  
 Calcium Sulfate Hemihydrate, **24**, 885  
 Calcium Sulfoaluminate, **24**, 715; **26**, 1673; **27**, 303; **30**, 429  
 Calculation, **23**, 1159  
 Calorimetry, **21**, 1148; **23**, 939; **25**, 1333; **26**, 203; **28**, 1289; **29**, 695, 1611; **30**, 511, 1375  
 CaO, **25**, 51; **29**, 599, 829, 1061, 1289, 1525, 1569  
 CaO·Al<sub>2</sub>O<sub>3</sub>, **23**, 1056  
 Ca<sub>3</sub>Al<sub>2</sub>O<sub>6</sub>, **30**, 1073  
 CaO·Al<sub>2</sub>O<sub>3</sub>·CaSO<sub>4</sub>·H<sub>2</sub>O, **22**, 1179; **23**, 221; **24**, 259  
 CaO·Al<sub>2</sub>O<sub>3</sub>·CaSO<sub>4</sub>·K<sub>2</sub>O·H<sub>2</sub>O, **23**, 1195  
 CaO·Al<sub>2</sub>O<sub>3</sub>·SiO<sub>2</sub>·CaF<sub>2</sub>·CaSO<sub>4</sub> System, **25**, 870  
 CaO·Al<sub>2</sub>O<sub>3</sub>·SiO<sub>2</sub>·H<sub>2</sub>O, **25**, 22  
 CaO·Al<sub>2</sub>O<sub>3</sub>·SO<sub>3</sub>·H<sub>2</sub>O, **21**, 991  
 CaO Alteration, **21**, 905  
 Ca(OH)<sub>2</sub>, **21**, 647, 885; **25**, 417, 1605; **26**, 1257, 1727; **27**, 539, 1237, 1379; **28**, 341, 567, 815, 1537, 1571; **29**, 37, 467, 867, 1525, 1673; **30**, 529, 607, 709, 1655  
 Ca(OH)<sub>2</sub> Calculation, **22**, 531  
 Ca(OH)<sub>2</sub>+Cl, **23**, 33  
 Ca(OH)<sub>2</sub> Crystals, **23**, 484  
 Ca(OH)<sub>2</sub> Solubility, **25**, 1043  
 CaO/SiO<sub>2</sub> Ratio, **25**, 929  
 CaOTiO<sub>2</sub>, **29**, 1851  
 Capillary Absorption, **27**, 1659  
 Capillary Depression, **27**, 245  
 Capillary Rise, **25**, 999  
 Capillary Suction, **23**, 843  
 Capillary Transport, **27**, 747  
 Capillary Transport Coefficient, **30**, 1559  
 Carbon, **21**, 368; **22**, 235, 882; **23**, 962; **25**, 1095; **27**, 193; **28**, 1479  
 Carbon-14, **22**, 381  
 Carbon Black, **30**, 865  
 Carbon Dioxide, **26**, 551  
 Carbon Fiber Composites, **24**, 214

- Carbon Fiber Reinforcement, **25**, 689; **27**, 845
- Carbon Fibers, **21**, 589; **23**, 618; **25**, 491, 1391; **26**, 1007, 1485; **27**, 437, 649, 1149, 1313, 1799, 1829; **28**, 183; **30**, 651, 1289
- Carbon Filament, **26**, 1467
- Carbonates, **23**, 1409; **25**, 339; **28**, 53
- Carbonation, **21**, 38, 441; **22**, 6, 439, 783, 882; **23**, 329, 442, 761, 773; **24**, 55, 1444; **25**, 39, 1703; **26**, 405, 729, 1095, 1199; **27**, 589, 995, 1073; **28**, 675, 829, 1023, 1393; **29**, 63, 107, 561, 923, 1261, 1929; **30**, 699, 1255, 1565, 1689, 1741
- Carboxylic Acids, **23**, 1380
- C-A-S-H, **23**, 627
- Ca-Si Gels, **26**, 623
- CaSO<sub>4</sub>·2H<sub>2</sub>O, **22**, 531
- Ca<sub>2</sub>SiO<sub>4</sub>, **24**, 1311; **28**, 1105, 1141, 1297; **29**, 503, 1305
- Ca<sub>3</sub>SiO<sub>5</sub>, **21**, 975; **25**, 721; **27**, 1203; **28**, 245, 481, 867; **29**, 355, 1099, 1851, 1857; **30**, 1073, 1853
- Ca<sub>3</sub>SiO<sub>5</sub> Pastes, **26**, 1369
- Casting, **28**, 115
- Casting-in-Situ, **25**, 1
- Catalytic Curing, **23**, 896
- Cathode/Anode Area Ratio, **25**, 989
- Cathodic Protection, **22**, 79; **23**, 1178; **27**, 649
- Cations, **24**, 743
- Cb, **26**, 377
- Cd, **27**, 479
- Cd Effect, **24**, 1359
- CdO, **25**, 1679
- Cellulose Fibers, **25**, 71
- Cement, **21**, 691, 1028; **22**, 121, 201, 247, 293, 381, 387, 393, 399, 405, 419, 431, 571, 822, 841; **23**, 157, 283, 1185; **24**, 937, 948; **25**, 71, 281, 311, 433, 440, 593, 1391, 1407; **26**, 1295, 1315; **27**, 185, 259, 983, 1249, 1393, 1453, 1919; **28**, 75, 135, 423, 635, 811, 1297, 1753; **29**, 193, 231, 309, 427, 441, 445, 451, 695, 727, 867, 893, 909, 1289, 1591, 1673, 1713, 1727, 1959; **30**, 385, 497, 571, 645, 767, 781, 931, 1105, 1251, 1305, 1619, 1723, 1755, 1929, 1983
- Cement Additives, **24**, 601; **27**, 1713
- Cement-Aggregate Interfaces, **22**, 769
- Cement-Aggregate System, **24**, 1097
- Cement Barriers, **22**, 311
- Cement-Based Composite, **29**, 1027
- Cement Based Systems, **22**, 299
- Cement/Bentonite, **22**, 339
- Cement Binders, **22**, 981; **25**, 752
- Cement-Blends, **27**, 825
- Cement Bond, **21**, 158
- Cement Cake, **23**, 347, 1431
- Cement Characteristics, **24**, 765
- Cement Clinker, **24**, 479; **25**, 79
- Cement Composites, **21**, 589; **22**, 359; **23**, 1016, 1215; **26**, 1467
- Cement Composition, **21**, 777; **25**, 853
- Cement Compounds, **27**, 551
- Cement Degradation, **22**, 465
- Cement Dispersion, **24**, 527
- Cement Equivalence Factor, **23**, 1029
- Cement-Fly Ash Binders, **26**, 895
- Cement-Gypsum Composites, **21**, 896
- Cement Hydrates, **21**, 484; **22**, 241; **27**, 1691
- Cement Hydration, **21**, 242, 410; **22**, 725; **23**, 833; **24**, 488, 514, 704, 743; **25**, 671, 1147; **30**, 865, 1017, 1655
- Cement-Kaolinite, **27**, 1919
- Cement Kiln Dust, **30**, 371
- Cement-Lime Mortars, **26**, 861
- Cement Manufacture, **25**, 459; **28**, 1093, 1335
- Cement Minerals, **24**, 959
- Cement Mortars, **21**, 523; **25**, 503; **28**, 41
- Cement Particles, **27**, 37
- Cement Paste Bleeding, **22**, 855
- Cement Paste Composites, **24**, 874
- Cement Pastes, **21**, 127, 179, 388, 515, 683, 727, 750, 795, 975, 1137, 1148; **22**, 47, 259, 439, 451, 489, 833, 1115; **23**, 139, 567, 1273; **24**, 551, 695, 841; **26**, 1545; **27**, 1191, 1591; **28**, 1037, 1585, 1629, 1687, 1737; **29**, 223, 273, 281, 507, 773, 777, 847, 933, 961, 1085, 1107, 1111, 1117, 1181, 1441, 1487, 1491, 1575, 1635, 1641, 1655, 1663, 1989; **30**, 1, 59, 83, 227, 241, 281, 359, 481, 521, 661, 747, 827, 855, 895, 953, 1057, 1157, 1175, 1289, 1295, 1421, 1443, 1477, 1543, 1633, 1671, 1759, 1767, 1979
- Cement Phases, **22**, 689
- Cement Processes, **21**, 269
- Cement Properties, **24**, 601
- Cement-Quartz Pastes, **26**, 1399; **27**, 1073
- Cement Raw Meal, **26**, 377
- Cement Raw Mix, **23**, 651
- Cement Replacement, **24**, 791; **30**, 865
- Cement-Rock, **23**, 335
- Cement Saturation, **24**, 975
- Cement Setting, **25**, 948; **26**, 491
- Cement Solidification, **24**, 707
- Cement Source, **25**, 1445
- Cement Stabilization, **27**, 337, 479
- Cement Strength, **27**, 883
- Cement Suspensions, **29**, 3
- Cement Systems, **22**, 325; **30**, 1895, 1955
- Cement-Talc-Chamotte, **22**, 736
- Cement Type, **22**, 451, 761, 1077; **25**, 893
- Cementation, **22**, 459
- Cemented Wastes, **27**, 1523
- Cementitious, **29**, 397
- Cementitious Beams, **25**, 408
- Cementitious Materials, **21**, 273
- Cementitious Systems, **26**, 539
- Cenospheres, **29**, 1635, 1641; **30**, 1715
- Center Notch, **26**, 125
- Cesium, **22**, 387
- Cesium Trapping, **22**, 369
- Characterization, **22**, 351; **24**, 1073, 1549; **25**, 395; **26**, 841; **27**, 479, 1561; **28**, 523, 939, 1237, 1275, 1379; **29**, 377, 441, 503, 623, 719, 747, 899, 1061, 1403, 1487, 1569, 1681, 1705, 1743, 1791, 1815, 1841; **30**, 175, 437, 491, 517, 1023, 1097, 1151, 1395, 1413, 1421
- Chemical Activation, **23**, 824, 1389; **25**, 15
- Chemical Admixtures, **25**, 29, 1320; **29**, 255, 1159
- Chemical Analysis, **22**, 707; **29**, 893
- Chemical Composition, **23**, 1159; **28**, 189; **30**, 1961
- Chemical Conversion, **24**, 176
- Chemical Fingerprints, **23**, 59
- Chemical Gypsum, **30**, 1755
- Chemical Identification, **23**, 283
- Chemically Bonded Ceramics, **21**, 66; **26**, 933; **27**, 407; **29**, 747; **30**, 315
- Chemical Processing, **22**, 331
- Chemical Reaction, **30**, 1895
- Chemicals, **27**, 947
- Chemical Shrinkage, **25**, 288
- Chemical Structure, **30**, 197
- Chemistry, **23**, 309; **25**, 9; **27**, 1543
- Chevron-Notch, **25**, 345



- Chinese Autoclave Method, **29**, 1393  
 Chloride Binding, **21**, 777; **24**, 8, 1525; **25**, 893; **26**, 1767; **27**, 1633, 1841; **29**, 1799; **30**, 1215  
 Chloride Concentrations, **26**, 319  
 Chloride Content, **23**, 1047; **26**, 1443  
 Chloride Diffusion, **23**, 724, 1105; **24**, 863; **25**, 197, 790, 1407, 1535, 1556, 1667; **27**, 937  
 Chloride Diffusion Cells, **27**, 853  
 Chloride Diffusion Coefficient, **26**, 1239  
 Chloride Diffusion Coefficients, **29**, 1799; **30**, 1885  
 Chloride Diffusivity, **21**, 1006; **24**, 1214, 1534; **26**, 551, 697; **30**, 725  
 Chloride Extraction, **26**, 267  
 Chloride Ingress, **26**, 1761  
 Chloride-Ion Penetration, **30**, 1037  
 Chloride Ion Permeability, **25**, 1284  
 Chloride Ions, **24**, 1433; **26**, 749, 907; **30**, 1581  
 Chloride Media, **26**, 215  
 Chloride Migration, **25**, 299  
 Chloride Monitoring, **26**, 1157  
 Chloride Penetration, **25**, 695; **27**, 1591; **29**, 417  
 Chloride Permeability, **25**, 803; **30**, 465  
 Chloride Reaction, **25**, 581  
 Chloride Removal, **24**, 1051; **26**, 851  
 Chloride Transport, **26**, 869  
 Chloride Threshold Level, **30**, 725  
 Chlorides, **21**, 635, 819, 1092; **22**, 27, 56, 129, 451; **23**, 139, 247, 1141, 1268, 1289, 1418, 1443; **24**, 49, 661, 913, 1229; **25**, 257, 531, 819, 980, 989; **26**, 513, 781, 1525, 1593, 1695; **27**, 515, 1213; **28**, 209, 365, 665, 939, 947, 1165, 1363, 1489, 1713; **29**, 187, 441, 473, 487, 687, 827, 861, 873, 885, 893, 917, 1085, 1111, 1411, 1463, 1469, 1475, 1497, 1937, 1995; **30**, 37, 217, 291, 529, 635, 895, 1047, 1199, 1565, 1879  
 Chromium, **25**, 433; **27**, 215; **29**, 545, 651, 1949, 1959; **30**, 385  
 Chromium-III, **26**, 1369  
 Cinder, **21**, 471  
 Circuit Models, **21**, 496  
 Cl-Ion, **23**, 1095  
 Class C Fly, **26**, 1131  
 Class F, **24**, 1153  
 Clay Index, **29**, 1815  
 Clay Minerals, **21**, 378; **25**, 1691  
 Clayey Aerated Concrete, **30**, 1559  
 Clays, **22**, 387; **23**, 711; **29**, 975; **30**, 7  
 Clinker Features, **24**, 776  
 Clinker Formation, **26**, 1435  
 Clinker Phases, **26**, 1821  
 Clinker Raw Mix, **27**, 1641  
 Clinker Synthesis, **26**, 1307  
 Clinkers, **21**, 484, 873, 905, 1176; **22**, 95; **24**, 1092; **25**, 157, 339, 835, 1103, 1095, 1103; **26**, 377, 1315, 1473; **27**, 63, 1613, 1861; **28**, 329, 481, 1519; **29**, 187, 303, 355, 531, 599, 679, 695, 727, 1173, 1373, 1505, 1627, 1847, 1949; **30**, 967, 1023, 1113  
 CMOD Compliance Calibration Technique, **29**, 705  
 CO<sub>2</sub>, **27**, 215  
 Co-60, **22**, 937  
 CO<sub>2</sub>, **21**, 127; **24**, 1165; **27**, 215  
 Coagulation, **25**, 779; **26**, 491  
 Coal Combustion By-Products, **25**, 658  
 Coarse Aggregate, **24**, 1044; **25**, 177, 1737  
 Coarse Aggregate for Concrete, **30**, 351  
 Coating, **22**, 597  
 Co-Diffusion, **22**, 525  
 Cohesion, **25**, 779 <sup>60</sup>Co, 311, 314; **29**, 1027  
 Cohesive Crack, **29**, 1055  
 Cold Bonding, **26**, 181  
 Color, **23**, 933  
 Colourimetric Method, **29**, 417  
 Combined Mineral Admixtures, **29**, 957  
 Compliance, **22**, 559  
 Composite Mechanism, **25**, 127  
 Composite Portland Cement, **29**, 1103  
 Composite Resin, **29**, 645  
 Composites, **22**, 981; **24**, 250, 1558; **25**, 71, 939; **26**, 521, 611, 1489; **27**, 925, 1135, 1393; **28**, 171, 439, 1101, 1179, 1809; **29**, 201, 231, 237, 445, 737, 769, 923, 989, 1323, 1597; **30**, 391, 403, 585, 781, 799, 977, 1251, 1593  
 Composition, **22**, 129, 1001; **23**, 1351, 1357; **24**, 1097, 1413; **25**, 1501; **26**, 1629; **28**, 635  
 Composition-Structure-Properties, **23**, 187  
 Compound Amixture, **30**, 45  
 Compound Type, **24**, 1463  
 Compounded Expansive Additive, **25**, 1295  
 Compounds, **21**, 991; **26**, 1613  
 Compression, **22**, 641; **24**, 1335; **26**, 1513; **30**, 1573  
 Compression Damage Zone, **25**, 702  
 Compression Strength, **29**, 429  
 Compressive Loading, **23**, 675  
 Compressive Strength, **25**, 240; **26**, 963; **27**, 487; **28**, 271, 533, 969, 1011, 1555, 1629, 1761, 1783, 1797; **29**, 171, 255, 323, 331, 407, 429, 451, 459, 497, 591, 619, 627, 631, 659, 673, 713, 737, 743, 781, 983, 1373, 1397, 1619, 1713, 1737, 1875, 1977; **30**, 77, 91, 153, 247, 379, 447, 511, 543, 599, 645, 739, 767, 1031, 1037, 1175, 1185, 1209, 1245, 1283, 1305, 1389, 1485, 1489, 1501, 1565, 1641, 1715, 1785, 1827, 1835  
 Computed Tomography, **21**, 625  
 Computer Simulation, **29**, 1201  
 Concentration, **24**, 1237; **25**, 57; **27**, 205, 235  
 Concepts, **22**, 941  
 Concrete, **21**, 1, 101, 205, 316, 368, 426, 462, 489, 545, 563, 601, 614, 941, 1035, 1083, 1092; **22**, 79, 375, 405, 503, 755, 1039; **23**, 329, 387, 453, 518, 576, 640, 761, 962, 1040, 1047, 1105, 1130, 1141, 1283; **24**, 55, 641, 661, 907, 913, 975; **25**, 387, 465, 497, 759, 841, 939, 1011, 1567, 1610; **26**, 113, 253, 611; **27**, 1, 1561; **28**, 7, 167, 365, 391, 549, 795, 803, 939, 969, 1379, 1417; **29**, 171, 255, 297, 331, 407, 417, 427, 435, 473, 619, 699, 769, 781, 813, 893, 917, 989, 1201, 1207, 1239, 1249, 1379, 1411, 1455, 1463, 1469, 1655, 1681, 1685, 1689, 1737, 1807, 1863, 1887, 1983; **30**, 63, 91, 1553, 259, 301, 323, 327, 339, 419, 447, 465, 491, 579, 599, 643, 651, 699, 715, 739, 799, 973, 981, 1031, 1037, 1063, 1105, 1121, 1199, 1245, 1313, 1389, 1427, 1495, 1573, 1593, 1647, 1679, 1723, 1785, 1885, 1929, 1969, 1993  
 Concrete Aggregate, **21**, 262  
 Concrete Attack, **28**, 19  
 Concrete Brittleness, **26**, 63  
 Concrete Carbonation, **22**, 235  
 Concrete Cavities, **27**, 1747



- Concrete Columns, **24**, 139  
 Concrete Cover, **30**, 725  
 Concrete Curing, **26**, 677  
 Concrete Deterioration, **21**, 1155  
 Concrete Dimensions, **24**, 83  
 Concrete Durability, **25**, 187, 929  
 Concrete Mix, **21**, 21  
 Concrete Overpass, **23**, 874  
 Concrete Performance, **26**, 355  
 Concrete Quality, **26**, 761  
 Concrete Research, **22**, 1067  
 Concrete Solution Extract, **25**, 1627  
 Concrete Strength, **21**, 285; **22**, 927  
 Concrete Structures, **23**, 69  
 Concrete Surface Treatment, **25**, 197  
 Conditional Solubility Product, **29**, 1091  
 Conductance, **28**, 7  
 Conduction, **24**, 948  
 Conduction Calorimetry, **21**, 359; **24**, 1025; **25**, 426  
 Conductivity, **21**, 515; **22**, 23; **25**, 1086, 1469; **27**, 63  
 Conductivity Cell, **25**, 1284  
 Confinement, **22**, 621  
 Consolidation, **27**, 657  
 Contact Angle, **21**, 1165  
 Contact Electrical Resistivity, **25**, 1391, 1397  
 Continuous Distribution, **29**, 1721  
 Contribution Rate to Strength, **29**, 951  
 Control, **23**, 973  
 Cooling Rate, **24**, 1092  
 Copper, **23**, 1259  
 Copper Slag, **24**, 1403; **27**, 1569  
 Corrections, **23**, 1307  
 Correlations, **26**, 1629  
 Corrosion, **21**, 38, 635, 777, 819, 1035; **22**, 489, 869; **23**, 33, 139, 368, 785, 1380, 1443; **24**, 401, 551, 1055, 1245, 1373, 1495; **25**, 376; **26**, 345, 475, 513, 761; **27**, 1681, 1731, 1811; **28**, 209, 321, 509, 577, 649, 995, 1071, 1119, 1133, 1775; **29**, 315, 827, 873, 899, 1541, 1555, 1561, 1583, 1681; **30**, 481, 623, 635, 843, 989, 1047, 1565, 1679, 1731, 1941  
 Corrosion Currents, **25**, 989  
 Corrosion Induced Cracking, **25**, 1179  
 Corrosion Inhibitors, **24**, 313; **26**, 405; **29**, 873; **30**, 635  
 Corrosion Potential, **24**, 38; **26**, 501  
 Corrosion Protection, **22**, 103; **26**, 1525  
 Corrosion Rates, **23**, 1273; **25**, 257; **26**, 1151, 1593; **30**, 1047  
 Corrosion Resistance, **27**, 679, 861  
 Corrosion Tests, **25**, 1209  
 Cr, **23**, 422; **24**, 319; **26**, 377  
 Crack Arrest, **26**, 1245  
 Crack Detection, **25**, 1063; **28**, 555; **29**, 1887; **30**, 1453, 1969, 791  
 Crack Frequency, **26**, 345  
 Crack Identification, **25**, 605  
 Crack Growth, **21**, 1; **28**, 103  
 Crack Propagation, **25**, 1165  
 Crack Spacing, **23**, 927  
 Crack Width, **30**, 725  
 Cracking, **22**, 159; **25**, 1747, 1775; **26**, 869, 919, 1199; **27**, 495, 811; **28**, 439, 1467  
 Cracks, **22**, 405; **25**, 1621; **26**, 573; **27**, 381; **29**, 1929; **30**, 37  
 Creep, **22**, 159; **25**, 1075; **26**, 1409; **27**, 1429; **28**, 985; **29**, 1149, 1647; **30**, 125, 183, 1701  
 Creep Recovery, **23**, 1369  
 Critical Threshold Stress, **25**, 408  
 Cristobalite, **23**, 1121  
 Cr<sub>2</sub>O<sub>3</sub>, **30**, 1361  
 Crushed Concrete, **28**, 401  
 Crusher Dust, **26**, 1121  
 Crushed Limestone Sand Concrete, **27**, 1719  
 Cryo Sublimation, **21**, 835  
 Crystal Growth, **27**, 811  
 Crystal Size, **25**, 1103, 1103; **25**, 721; **27**, 917; **30**, 101  
 Crystal Structure, **25**, 945; **28**, 1105, 1141, 1393; **29**, 63, 355, 503, 679, 1937; **30**, 191, 307, 1619  
 Crystalline Products, **23**, 471  
 Crystallinity, **24**, 813; **26**, 1451  
 Crystallography, **27**, 369  
 CS, **23**, 693  
 Cs-137, **22**, 937  
 C-S-H, **24**, 176, 813, 1428; **25**, 929; **26**, 1257; **28**, 341, 357, 897; **29**, 1099, 1893, 1999; **30**, 1869  
 C-S-H(I), **27**, 1581  
 C-S-H Composition, **26**, 295  
 C-S-H Decomposition, **24**, 55  
 C-S-H Gel, **22**, 1001; **23**, 131; **25**, 1237; **27**, 1649; **29**, 1091  
 C-S-H Growth, **27**, 665  
 Cs Immobilization, **21**, 941  
 Cs Selectivity, **24**, 573  
 C/S Ratio, **29**, 1999  
 Cultural Heritage, **29**, 1749  
 CuO, **26**, 1473  
 Curing, **22**, 1089; **23**, 583, 1480; **26**, 1341; **28**, 453, 859, 1201, 1237, 1761; **29**, 45, 323, 369, 515, 659, 667, 761, 917, 1475, 1713, 1737, 1863; **30**, 275, 465, 543, 703, 791, 977, 1157, 1255  
 Curing Age, **27**, 1313  
 Curing Conditions, **24**, 1390; **25**, 903; **26**, 355  
 Curing Procedure, **29**, 497  
 Curing Temperature, **25**, 485; **27**, 1009, 1343  
 Curing Time, **25**, 311  
 Cyanide, **24**, 707  
 Cycles, **26**, 683; **30**, 323, 799, 1199  
 Cycling, **27**, 1319  
 3-D Profile, **30**, 981  
 Dam Concrete, **28**, 93  
 Damage, **21**, 73, 219, 625; **24**, 83; **29**, 1519  
 Damage Monitoring, **30**, 1979  
 Damping, **30**, 327  
 Data, **25**, 276  
 Dead-Burning, **25**, 51  
 Decalcification, **26**, 1029  
 Decanted Solution, **25**, 531  
 Decarbonation, **22**, 235, 882  
 Decomposition, **22**, 6  
 Dedolomitization, **23**, 1397  
 DEF, **28**, 1147; **29**, 1347, 1943  
 Deflection, **30**, 593  
 Deflection Measurements, **23**, 1455  
 Deformations, **22**, 149  
 Degradation, **23**, 152; **27**, 777; **28**, 125, 713, 847, 1669; **29**, 627, 781, 789, 1347, 1433; **30**, 153, 843, 1407, 1527, 1741, 1747, 1815  
 Degree of Hydration, **29**, 143, 1721; **30**, 301, 561, 1861  
 Degree of Polymerization, **23**, 122  
 Degree of Reaction, **26**, 139  
 Deicing Salts, **25**, 617; **26**, 1163  
 Delay, **21**, 928, 1049  
 Delayed Addition, **24**, 291  
 Delayed Deformation, **27**, 1429  
 Delayed Ettringite, **25**, 903; **27**, 1761  
 Delayed Ettringite Formation, **28**, 357; **29**, 1173; **30**, 1987, 1407  
 Delayed Formation, **25**, 63; **26**, 1649  
 Dense Matrix, **27**, 925  
 Deposition, **28**, 125  
 Depth, **22**, 1077  
 Desalinisation, **30**, 615  
 Desiccation, **25**, 1246  
 Desorption, **24**, 1428

- Desorptivity, **29**, 1743  
 Detectability, **24**, 92  
 Detection, **22**, 1148, 1170  
 Deterioration, **21**, 917; **23**, 874, 1040; **26**, 999  
 Dewatering, **24**, 159  
 Differential Scanning Calorimeter, **30**, 1827  
 Diffusion, **21**, 137, 1092; **22**, 439, 445; **23**, 1289; **24**, 907; **25**, 86, 819, 1257; **26**, 781, 907; **27**, 979, 995, 1633; **28**, 665, 939, 947; **29**, 315, 473, 487, 515, 595, 667, 1111, 1239, 1261, 1379, 1411, 1463, 1469, 1475, 1497, 1591, 1605, 1921, 1995; **30**, 37, 217, 419, 535, 703, 953, 1121, 1151, 1199, 1215, 1879, 1911  
 Diffusion Coefficient of Chloride Ion, **30**, 989  
 Diffusion Coefficients, **26**, 1831; **30**, 615  
 Diffusion Equations, **24**, 1010  
 Diffusion-Limited Aggregation, **30**, 1853  
 Diffusivities, **24**, 752, 1165, 1229  
 Diffusivity, **25**, 299, 1284, 1159; **26**, 1301; **27**, 293  
 Digital Image Mapping, **27**, 1603  
 Digital Image Processing, **30**, 351  
 Digital Image Publication, **26**, 3  
 Digitized Images, **24**, 325  
 Dimensional Analysis, **30**, 907  
 Dimensional Variations, **23**, 301  
 Direct Tension Test, **26**, 949  
 Dispersing Mechanism, **30**, 887  
 Dispersion, **26**, 985; **30**, 197, 1139  
 Displacement, **27**, 495  
 Dissolution, **23**, 93; **29**, 1091  
 Distress, **28**, 401  
 Dolomite, **24**, 1073; **26**, 1579  
 Dolostones, **21**, 853; **23**, 1397  
 Doping, **22**, 743  
 Double Factors, **29**, 1519  
 Dry and Compliance Rates, **30**, 1465  
 Dry Cements, **26**, 237  
 Dry Concrete Products, **26**, 427  
 Drying, **26**, 1423; **27**, 1191, 1319; **28**, 453, 985, 1467; **29**, 1149, 1225, 1655, 1819, 1921; **30**, 359, 1157, 1401  
 Drying-Rewetting, **24**, 89  
 Drying Shrinkage, **27**, 1603  
 Drying Techniques, **23**, 1223  
 DSC, **24**, 1515; **26**, 1473; **28**, 335  
 DSP, **28**, 171  
 DSP Cement, **23**, 480  
 Dual-Phases, **24**, 1245  
 Ductility, **24**, 250; **29**, 855  
 Durability, **22**, 217, 259; **23**, 683; **24**, 1403; **25**, 511, 1153, 1264; **26**, 557, 601, 1189; **27**, 427, 711, 721, 971, 983, 1047, 1543, 1911; **28**, 41, 847, 1275, 1417, 1639, 1775, 1809; **29**, 95, 201, 249, 527, 537, 667, 713, 719, 819, 827, 899, 917, 1039, 1047, 1173, 1207, 1331, 1397, 1433, 1819, 1943, 2005; **30**, 25, 233, 345, 419, 623, 725, 973, 977, 1189, 1231, 1389, 1407, 1453, 1741, 1903, 1947, 1961  
 Dust, **24**, 497  
 Dye Impregnation, **26**, 573  
 Dye Penetration Test, **29**, 705  
 Dynamic Corrosion, **28**, 365  
 Dynamic Loading, **27**, 453; **29**, 805  
 Dynamic Modulus, **25**, 1246  
 Dynamic Modulus of Elasticity, **30**, 1283  
 Dynamics, **21**, 21  
 Early Age, **22**, 927; **24**, 1025; **29**, 1827; **30**, 915, 1573  
 Early Heat of Hydration, **22**, 822  
 Early Hydration, **21**, 765; **25**, 426; **27**, 1419; **26**, 439  
 Early Stage, **27**, 577  
 Early Strength, **24**, 277; **25**, 449  
 Edges, **27**, 665  
 EDS, **29**, 1915  
 EDTA Extraction, **26**, 139  
 EDX, **29**, 1497; **30**, 1941  
 Effect, **30**, 827  
 Effectiveness, **22**, 359  
 Efficiency, **24**, 931; **25**, 1273; **30**, 1031  
 Efficiency Factor, **26**, 465  
 Efflorescence, **29**, 1929  
 Eigenstress, **24**, 1085; **30**, 1535  
 Elastic Constants, **22**, 761  
 Elastic Modules, **26**, 611  
 Elastic Modulus, **22**, 149; **25**, 165, 276, 1605; **26**, 83; **27**, 1021; **28**, 727; **29**, 839, 847, 1085, 1455, 1647, 1995; **30**, 125, 709, 937, 1299, 1633  
 Elastic Properties, **24**, 1199  
 Electric-Arc Furnace Dust, **27**, 267  
 Electric Arc Furnace Slag, **30**, 517  
 Electric Factories, **21**, 471  
 Electric Field, **25**, 695  
 Electrical Conductivity, **21**, 863; **23**, 359; **24**, 752; **25**, 1615; **26**, 529, 1801; **30**, 1827, 1861  
 Electrical Double Layer, **22**, 774; **26**, 907  
 Electrical Impedance, **26**, 253  
 Electrical Properties, **28**, 549, 887, 1201, 1281, 1325, 1373, 1707, 1737; **29**, 377, 435, 445, 603, 769, 961, 1989; **30**, 323, 585, 643, 651, 661, 683, 799, 923, 973, 1057, 1251, 1289, 1295, 1395, 1593, 1979  
 Electrical Resistance, **27**, 1313  
 Electrical Resistivity, **22**, 804; **26**, 15  
 Electroacoustics, **30**, 1767  
 Electrochemical Chloride Extraction, **25**, 727; **26**, 165, 771, 1095; **29**, 1555, 1561  
 Electrochemical Extraction, **24**, 1515  
 Electrochemical Impedance Spectroscopy (EIS), **30**, 1723  
 Electrochemical Method, **24**, 1534  
 Electrochemical Process, **26**, 851  
 Electrochemical Properties, **28**, 321, 391, 1071; **29**, 527, 687, 873, 1411, 1555, 1583; **30**, 635  
 Electrochemical Removal, **23**, 1095, 1141  
 Electrochemical Removal of Chlorides, **30**, 615  
 Electrochemical Tests, **26**, 545  
 Electrode, **27**, 1747  
 Electrode Potential, **24**, 401  
 Electromagnetic Wave Scattering, **25**, 1011  
 Electron Beam, **28**, 161  
 Electron Probe, **26**, 1695  
 Electron Probe Microanalysis, **25**, 863  
 Electroplating Wastes, **22**, 399, 589  
 Elevated Temperature, **23**, 981  
 Elevated Temperature Curing, **25**, 627  
 Embedding, **22**, 419  
 Embedment, **22**, 287  
 Encapsulation, **22**, 293  
 Energy, **22**, 551  
 Energy-Dispersive Analysis, **28**, 1545  
 Energy-Dispersive Diffraction, **23**, 267  
 Endod, **25**, 553  
 Endod Berry Extract, **21**, 401  
 Enhancement, **26**, 49  
 Environmental SEM, **22**, 605  
 EPMA, **29**, 1497  
 Epoxides, **22**, 273  
 Epoxy, **21**, 905; **23**, 896; **30**, 259  
 Epoxy Impregnation, **21**, 835  
 Epoxy Resins, **29**, 95  
 EPR Spectra, **26**, 237  
 Equilibrium, **24**, 259

- ESCA, **28**, 245  
 Estimation, **21**, 1103; **28**, 93  
 Ethanolamines, **26**, 701; **27**, 805  
 Ettringite, **22**, 6, 217, 671, 1130; **23**, 267, 422, 353, 981, 1397; **24**, 735, 1383, 1492, 1515; **25**, 29, 63, 658, 1264, 1347, 1417; **26**, 309, 1277, 1493, 1649; **27**, 1061, 1085; **28**, 53, 591, 763, 1223; **29**, 17, 309, 369, 731, 1005, 1535, 1943; **30**, 117, 233, 429, 529, 623, 775, 1535  
 Ettringite Crystals, **24**, 119  
 Ettringite Formation, **26**, 417; **30**, 411  
 Ettringite Nucleation, **24**, 1015  
 Evaporation Test, **25**, 1627  
 Expanding Direction, **29**, 855  
 Expansion, **21**, 563, 614, 1069; **22**, 15, 961, 990; **23**, 1397; **24**, 73, 119, 728; **27**, 495, 811, 1061, 1299; **28**, 1147, 1505, 1655; **29**, 527, 731, 975, 983, 1013, 1277, 1393, 1419, 1635, 1641, 1781; **30**, 117, 281, 359, 419, 757, 843, 1063, 1139, 1267, 1485  
 Expansion Mechanism, **24**, 621; **25**, 51  
 Expansive Admixture, **25**, 29  
 Expansive Cements, **21**, 229, 1049; **22**, 1; **26**, 805  
 Expansive Clinker, **21**, 147  
 Expansive Mechanisms, **22**, 1039  
 Expansivity, **26**, 993; **27**, 1627  
 Experiments, **21**, 928; **22**, 445, 891; **26**, 1325  
 Experimental Methods, **26**, 1443  
 Exposure, **23**, 1409; **25**, 197  
 Extended Set Control, **21**, 750  
 Extraction, **26**, 791  
 Extreme Vertices Design, **29**, 957  
 Fabric, **30**, 781  
 Failure Mode, **24**, 1286  
 Fast-Setting Early Strength Agent, **30**, 45  
 Fatigue, **26**, 1513; **28**, 309; **29**, 423, 705, 1077; **30**, 1453  
 Fatigue Crack Growth Rate, **29**, 705  
 Fatigue Damage, **26**, 15  
 Fatigue Strength, **27**, 115  
 Fatigue Tests, **25**, 1655  
 Fe, **27**, 1167  
 Ferrite, **21**, 31; **24**, 503, 1347; **26**, 1689  
 Ferrite Hydrates, **27**, 1167  
 Ferrite Phase, **23**, 933  
 Ferrocement, **25**, 969  
 Ferrophosphorus, **23**, 988  
 Fiber Composites, **24**, 1121  
 Fiber Concrete, **22**, 351  
 Fiber Geometry, **29**, 1027  
 Fiber Mortar Composites, **24**, 896  
 Fiber Reinforced, **30**, 1593  
 Fiber Reinforced-Cements, **22**, 804; **29**, 209  
 Fiber-Reinforced Concrete, **29**, 769, 1827; **30**, 1277  
 Fiber Reinforcement, **25**, 1075; **26**, 363, 1045; **28**, 549, 555, 783, 961; **29**, 193, 237, 423, 435, 445, 737, 773, 961, 989, 1107, 1117, 1323, 1519, 1597, 1807, 1835, 1989; **30**, 183, 241, 585, 661, 1251, 1295, 1495, 1747  
 Fibers, **22**, 1201; **23**, 83; **26**, 9, 1245; **27**, 395; **28**, 1133  
 Fick's Law, **25**, 299  
 Fictitious Crack Model, **29**, 855  
 Field Concrete, **26**, 1341  
 Field Exposure, **23**, 1289  
 Field Method, **23**, 1047  
 Field Test, **23**, 683  
 Filler, **26**, 943; **28**, 1101; **30**, 703, 1663  
 Filler Effect, **24**, 721  
 Filler Fineness, **24**, 931  
 Filtration, **23**, 347; **25**, 933  
 Fineness, **24**, 483; **25**, 9; **27**, 185; **28**, 687, 1445, 1595; **29**, 459, 531  
 Fines, **29**, 765  
 Finger-printing, 1105  
 Finite Element Analysis, **25**, 1031; **29**, 1921; **30**, 715  
 Finite Element Method, **24**, 1  
 Finite Volume Analysis, **30**, 83  
 Fire Behavior, **30**, 1915  
 Flash-Calcining, **25**, 102  
 Flat Aggregate, **21**, 515  
 Flaws, **22**, 551  
 Flexural Dynamic Modulus, **27**, 833  
 Flexural Strength, **28**, 115, 439; **29**, 121, 497  
 Flexural Toughness Factor, **30**, 593  
 Flint, **27**, 235  
 Flow, **23**, 803; **25**, 1403; **27**, 733, 1141  
 Flowability, **29**, 261  
 Flow Behavior, **23**, 273, 1369  
 Flow Test, **28**, 177  
 Fluid Catalytic Cracking Catalyst, **29**, 1773  
 Fluidity, **22**, 1115; **28**, 63  
 Fluidized Combustion Ash, **28**, 299  
 Fluid Loss, **23**, 347, 1431  
 Fluorescent Liquid, **25**, 1063  
 Fluogypsum, **28**, 135; **29**, 349; **30**, 275  
 Fluoride, **24**, 801; **28**, 1357; **29**, 1847  
 Fluor-Phosphate, **22**, 869  
 Flux Evaporation, **27**, 1439  
 Fluxes, **26**, 457, 1361  
 Fluxing, **25**, 339  
 Fluxmeter, **30**, 301  
 Fluxural Strength, **27**, 165  
 Fly Ash Aggregate, **27**, 525  
 Fly Ash-Belite Cement, **30**, 1231  
 Fly Ash-Cement Blends, **25**, 1490  
 Fly Ash Class F, **25**, 1320  
 Fly Ash Concretes, **24**, 277; **26**, 465  
 Fly Ash Effect, **30**, 71  
 Fly Ashes, **21**, 205, 410, 523, 819; **22**, 35, 95, 121, 822, 1216; **23**, 41, 507, 917, 1029, 1105, 1480; **24**, 109, 303, 361, 791, 913, 1065, 1455; **25**, 15, 417, 449, 1469; **26**, 49, 153, 225, 1189, 1295, 1717, 1761; **27**, 193, 395, 577, 657, 825, 907, 1009, 1093, 1237, 1365, 1861, 1875, 1885; **28**, 135, 197, 271, 309, 643, 675, 713, 749, 829, 841, 1209, 1217, 1445, 1479, 1555, 1585, 1605, 1819; **29**, 179, 297, 309, 349, 377, 467, 585, 619, 631, 673, 765, 1103, 1189, 1207, 1281, 1323, 1427, 1525, 1569, 1705, 1713, 1727, 1737, 1791, 1905, 1915, 1969; **30**, 19, 63, 175, 253, 275, 291, 447, 457, 543, 553, 699, 747, 823, 881, 989, 1037, 1063, 1239, 1263, 1489, 1785  
 Fly Ash Fineness, **21**, 285  
 Fly Ash Mortar, **24**, 1335  
 Fly Ash Quality, **21**, 1092  
 Fly Ash-Slag Complex Cement, **30**, 1381  
 Fly Ash Slurries, **25**, 1403  
 Formation, **24**, 49, 119  
 Formation Kinetics, **24**, 715  
 Formwork, **27**, 1047  
 Fractal Aspects, **29**, 1181  
 Fractal Dimension, **24**, 325, 605; **30**, 1853  
 Fractal-Types, **25**, 147  
 Fractals, **23**, 7, 1153; **28**, 103  
 Fractionation, **23**, 917  
 Fracture Energy, **25**, 497; **27**, 1031  
 Fracture Mechanics, **29**, 855  
 Fracture Process, **21**, 545  
 Fracture Process Zone, **21**, 737, 1118; **22**, 559; **29**, 1887  
 Fracture Properties, **23**, 711; **25**, 543  
 Fracture Resistance, **29**, 645

- Fracture Surfaces, **22**, 67, 678; **23**, 7; **24**, 325, 1140; **27**, 785
- Fracture Toughness, **26**, 521; **28**, 349; **29**, 193, 1905; **30**, 579, 1427
- Fractures, **21**, 1; **22**, 755, 1170; **25**, 1218; **26**, 181; **27**, 1333; **28**, 271, 341; **29**, 397; **30**, 731
- FRC, **23**, 1455
- Free Lime, **25**, 440; **26**, 243; **29**, 1857
- Freeze-Thaw, **26**, 55; **27**, 1319; **30**, 191
- Freeze/Thaw Damage, **28**, 261
- Freeze-Thaw Resistance, **22**, 515, 1141
- Freezing, **25**, 1775; **27**, 427, 1761
- Freezing and Thawing, **28**, 1275, 1281; **29**, 627, 737, 781, 1519; **30**, 843, 1929
- Freezing-Thawing, **21**, 844; **23**, 951
- Frequency Dispersion Angle, **24**, 86
- Fresh Cement Paste, **23**, 1369
- Fresh Concrete, **23**, 1307; **25**, 1320; **26**, 1121; **28**, 555; **29**, 377, 753, 1427, 1819; **30**, 809, 1245, 1663
- Fresh Mortar, **30**, 915
- Fresh Paste, **21**, 835, 1058; **25**, 353
- Fresh State, **25**, 1747; **26**, 283
- Friction, **29**, 1027
- Friedel's Salt, **25**, 581; **26**, 717, 729; **29**, 861, 1937; **30**, 1535
- Friedel's Salt Formation, **30**, 411
- Frost, **21**, 614
- Frost Deterioration, **25**, 1781
- Frost Durability, **26**, 919, 1163; **30**, 1929
- Frost Resistance, **25**, 809
- Frost/Salt-Scaling Resistance, **30**, 1313
- Frumkin Isotherm, **30**, 823
- FTIR, **23**, 773; **24**, 1153; **25**, 1435
- FT Raman Microspectroscopy, **24**, 959
- Fuels, **23**, 1185; **24**, 613
- Fully Hydrated, **21**, 975
- Fuzzy Logic, **27**, 883
- Galvanizing, **26**, 215, 1525
- Gamma Irradiation, **22**, 273
- Garnet Granulites, **26**, 397
- Gas, **21**, 257
- Gas Concretes, **21**, 455
- Gas Permeability, **25**, 1054, 1621; **26**, 781
- Gel, **29**, 1149
- Gel Formation, **26**, 1843
- Gel Pores, **27**, 747
- Gel/Space Ratio, **30**, 747
- Generic Equations, **28**, 33, 499
- Geometrical Changes, **27**, 1465
- Geothermal Cements, **25**, 1305; **29**, 1969
- Geothermal Waste, **29**, 623
- Getters, **22**, 247
- GGBS, **28**, 907
- Glass, **25**, 1225; **26**, 1683; **29**, 1791; **30**, 419
- Glass Fiber Reinforcement, **23**, 213; **27**, 1885
- Glass Polyalkenoate Cement, **29**, 645
- Glassy Spheres, **25**, 1369
- Glycerin, **21**, 911
- Glycol, **25**, 1153
- Grading, **24**, 931
- Grain Size, **24**, 514; **27**, 1213
- Granite, **23**, 1229
- Granulated Blast Furnace Slag, **28**, 655, 1049, 1363, 1819; **29**, 113, 455, 459, 659, 975, 1313, 1373; **30**, 19, 465, 473, 599, 645, 791, 963, 989, 1031, 1375, 1389, 1401, 1791, 1879
- Granulated Blast Furnace Slag-Cement Paste, **29**, 2005
- Granulated Slag, **24**, 863; **25**, 332
- Granulation, **30**, 1113
- Granulometry, **21**, 1058; **24**, 791
- GRC, **27**, 1701
- Green Rust, **23**, 785
- Grindability, **23**, 1078; **24**, 497; **27**, 673; **29**, 303
- Grinding, **25**, 1469; **26**, 225; **27**, 1861; **28**, 1519, 1555, 1819; **29**, 9, 171, 531, 727, 743, 1387; **30**, 543, 1037, 1185
- Ground Ash, **30**, 13
- Ground Blast Furnace Slag, **29**, 1281
- Ground Brick, **29**, 1781; **30**, 757
- Ground Granulated Blast Furnace Slag, **29**, 159, 429, 1619; **30**, 1367
- Ground Quartz Sand, **30**, 1993
- Ground Waste Glass, **30**, 91
- Grouts, **21**, 441; **27**, 395, 1875; **29**, 331, 867; **30**, 937
- Growth Pressure, **25**, 51
- Gypsum, **21**, 765, 885, 1028; **22**, 605; **24**, 150, 1065, **25**, 332, 417, 1755; **26**, 1505, 1843; **27**, 259, 1237; **28**, 423, 523, 591, 1223; **29**, 727, 1419; **30**, 1535
- Gypsum-Activated Fly Ash, **21**, 1137
- Gypsum Binders, **26**, 449
- Gypsum Composites, **23**, 213
- Gypsum Content, **21**, 120
- Gypsum-Free Pastes, **25**, 685
- Gypsum Plaster, **21**, 378
- HAC, **23**, 885
- Hadley Grains, **29**, 1167, 1181
- Half-Cell Potential, **23**, 1443
- Hall Effect, **21**, 426
- Hardened Cement Pastes, **25**, 1218
- Hardened Concrete, **26**, 1121
- Hardening, **22**, 1161; **27**, 1489
- Hardening Mechanism, **24**, 542
- Hazardous Waste, **22**, 331
- HCl, **22**, 903; **27**, 1911
- Healing, **26**, 869
- Heat, **24**, 165
- Heat Curing, **26**, 295, 1649; **29**, 17
- Heat-Cured Pastes, **25**, 853
- Heat Evolution, **22**, 1019
- Heat Flow, **23**, 761; **25**, 426, 1703
- Heat of Hydration, **23**, 196; **25**, 647; **27**, 733, 1851; **29**, 143, 945; **30**, 209
- Heat Treatment, **21**, 205; **22**, 1224; **23**, 353; **30**, 1835
- Heating, **21**, 795; **26**, 1661; **27**, 833, 1761; **28**, 209; **30**, 209
- Heating Rate, **27**, 1123
- Heavy Liquid Analysis, **24**, 176
- Heavy Metals, **28**, 55, 545, 1433, 1605, 1949, 1959; **29**, 1753; **30**, 429, 1079
- Heavyweight Additive, **23**, 988
- Heterogeneity, **24**, 1055
- Hexavalent Cr, **24**, 533
- High Alkalinity, **23**, 152
- High-Alumina Cement Additive, **24**, 267
- High-Alumina Cement Clinker, **24**, 335
- High-Alumina Cements, **21**, 51, 873; **22**, 369, 1192; **24**, 650; **25**, 1295, 1311; **26**, 417, 799
- High-Calcium Fly Ash, **26**, 243; **30**, 1647
- High-Ca<sub>3</sub>Al<sub>2</sub>O<sub>6</sub>, **25**, 1103, 1103
- High Content, **27**, 1885
- High Content SO<sub>3</sub>, **26**, 1307
- High-Content Slag Cement, **30**, 45
- High Fly Ash, **25**, 759
- High Fly Ash Content, **21**, 455
- High Frequency Arc, **24**, 92, 704
- High Frequency Measurements, **30**, 1057
- High Iron Cements, **21**, 31
- High Level Waste, **24**, 133
- High MgO, **28**, 1
- High Performance, **27**, 817; **28**, 803; **30**, 907
- High Performance Mortars, **24**, 1140; **29**, 785
- High Performance Pastes, **24**, 1433; **26**, 749



- High-Performance Concrete, **24**, 854; **25**, 177, 209, 1199; **26**, 283; **27**, 1093, 1141, 1357; **28**, 509, 687, 1023, 1119; **29**, 45, 133, 267, 423, 577, 615, 813, 1013, 1215, 1225, 1427, 1475, 1497, 1647, 1977; **30**, 247, 379, 989, 1225, 1283, 1299, 1349, 1489, 1501, 1701, 1791, 1841, 1915
- High pH, **23**, 785
- High-Range Water Reducers, **28**, 1209, 1325, 1405, 1783; **29**, 71, 223, 1535; **30**, 767, 1663
- High Strength, **24**, 139; **26**, 567, 919; **27**, 1481; **28**, 171; **30**, 1239, 1993
- High Strength Cementitious Materials, **22**, 1201
- High Strength Concretes, **21**, 844; **22**, 159; **25**, 543, 709, 715, 1246, 1633, 1775, 1791; **26**, 55, 1513; **27**, 833, 1281; **29**, 1519
- High-Strength Mortars, **26**, 883
- High Sulphate, **27**, 1523
- High Temperature, **21**, 91; **25**, 1791; **27**, 1299; **30**, 247, 379
- High Volume, **24**, 303
- High Volume Fly Ash, **30**, 71
- High Volume Fly Ash Concrete, **25**, 1165
- Hirsch Model, **21**, 947
- Hollow Shells, **26**, 593
- Homogeneity, **23**, 663
- Homogenization, **29**, 1341
- Homra, **30**, 1827
- Homra Pozzolan Cement, **30**, 1835
- Hot Climates, **24**, 353; **26**, 1341
- Hot-Humid Climate, **21**, 601
- Hot Weather Concreting, **21**, 345
- Humidity, **25**, 485, 1237; **27**, 937, 1489; **28**, 453, 841, 877, 1809; **29**, 45, 567, 577, 923, 1225, 1505, 1655, 1819, 1921; **30**, 1527
- Hydrated Cement Paste, **22**, 1059
- Hydrates, **24**, 343
- Hydration, **21**, 91, 355, 391, 509, 683, 691, 1111, 1129; **22**, 1, 112, 121, 217, 689, 961, 1019, 1216; **23**, 1, 20, 104, 693, 1056, 1169, 1253; **24**, 150, 319, 353, 413, 433, 542, 682, 885, 937, 966, 1347, 1413; **25**, 63, 288, 319, 522, 581, 779, 883, 1023, 1086, 1095, 1333, 1679, 1791; **26**, 593, 701, 1131, 1179, 1689, 1753, 1843; **27**, 147, 359, 369, 501, 577, 817, 1009, 1249, 1393, 1569; **28**, 135, 231, 245, 335, 381, 423, 523, 815, 829, 867, 1245, 1259, 1289, 1357, 1393; **29**, 3, 27, 63, 107, 143, 159, 349, 503, 577, 591, 615, 885, 945, 983, 1005, 1013, 1099, 1159, 1167, 1299, 1305, 1487, 1505, 1513, 1575, 1663, 1841, 1851; **30**, 177, 267, 315, 447, 645, 693, 747, 817, 931, 953, 993, 1013, 1121, 1239, 1395, 1633, 1709, 1791, 1801, 1853, 1911, 1947
- Hydration Calorimetry, **23**, 46
- Hydration Degree, **23**, 399; **30**, 1381
- Hydration Degree, **23**, 399
- Hydration Kinetics, **23**, 194; **24**, 1549; **27**, 303
- Hydration Mechanism, **30**, 1983
- Hydration Model, **25**, 593
- Hydration Products, **25**, 561; **28**, 1713; **29**, 667, 699, 1005, 1365, 1487, 1505, 1525, 1641, 1681, 1713, 1943
- Hydration Products, DEF, **30**, 137, 223, 227, 267, 607, 1073, 1435
- Hydraulic, **27**, 1825
- Hydraulic Activity, **21**, 471
- Hydraulic Behavior, **23**, 1205
- Hydraulic Binders, **22**, 287; **23**, 462
- Hydraulic Profiles, **30**, 1559
- Hydrogarnet, **27**, 1167, 1787; **28**, 1109, 1309; **30**, 1869
- Hydrogarnets, **25**, 22
- Hydrotalcite, **26**, 1707
- Hydrothermal, **22**, 783; **27**, 83, 1237, 1791
- Hydrothermal Cements, **25**, 240; **27**, 317, 315; **28**, 1
- Hydrothermal Conditions, **23**, 321
- Hydrothermal Reaction, **22**, 577; **26**, 1335
- Hydroxyapatite, **29**, 1167
- Hydroxyl, **22**, 129; **23**, 1397
- Hydroxysodalite, **21**, 575
- Hygic Properties, **30**, 1267
- Hygrometric Stress, **21**, 251
- Ice, **23**, 69
- Ice Formation, **30**, 1929
- Identification, **26**, 791; **27**, 1407
- Ilmenite Dust, **26**, 707
- Image Analysis, **21**, 835, 1058; **24**, 830, 841; **25**, 827; **28**, 1621, 1695; **29**, 1181, 1403, 1983; **30**, 25, 491, 849, 981, 1517
- Images, **23**, 576; **28**, 411
- Immobilization, **22**, 201, 571; **24**, 133; **27**, 215
- Impact, **21**, 158; **30**, 907
- Impact Loading, **26**, 363
- Impact Resistance, **27**, 1893; **30**, 1277
- Impact Test, **29**, 989
- Impedance, **24**, 682; **26**, 529; **30**, 585
- Impedance Measurements, **27**, 1191
- Impedance Spectroscopy, **21**, 496; **22**, 56; **24**, 231
- Improvement, **27**, 1805
- Improvements, **22**, 311
- Incinerator Bottom Ash, Identification, **27**, 1701
- Industrial Waste, **22**, 319
- Inert Fillers, **25**, 1225
- Infinite Sample Method, **21**, 863
- Infrared Spectrum, **29**, 805
- Ingress, **23**, 1289
- Inhibition, **23**, 1115, 1380
- Inhibitors, **29**, 1583
- Inhomogeneity, **27**, 1113
- Initial Steps, **23**, 33
- Initial Surface Absorption, **30**, 1501
- Inner Product, **22**, 1224
- In Situ, **27**, 501
- Insitu Strength, **21**, 1103
- Insoluble Residue, **30**, 1209
- Interaction, **29**, 1159
- Interfaces, **21**, 242, 515, 718, 983; **24**, 695, 1299; **26**, 253; **27**, 971; **30**, 1983
- Interfacial Stress, **21**, 809
- Interfacial Transition Zone, **27**, 1113; **28**, 727, 787, 887, 1037, 1057, 1453; **29**, 17, 369, 407, 423, 839, 1019, 1201, 1299, 1455; **30**, 253, 457, 579, 683, 715, 849, 1299, 1427, 1911, 1941
- Interfacial Zone, **23**, 567; **24**, 1277; **26**, 35, 963; **27**, 437; **29**, 281
- Intergrinding, **22**, 95; **23**, 651; **24**, 931
- Intermediate Level Wastes, **22**, 325
- Internal Moisture, **29**, 1249
- Internal Relative Humidity, **24**, 1373
- Internal Release, **30**, 1969
- Internal Sulfate Attack, **27**, 1299
- Interpenetrating, **29**, 1541
- Interphase Boundaries, **23**, 599
- Interstitial Phases, **24**, 1092
- Intrinsic Permeability, **25**, 1737
- Intrinsic Strength, **22**, 689
- Invasion-Frost-Thaw Events, **29**, 209
- Invasion Percolation, **29**, 209
- Ion Concentration, **23**, 853
- Ion Diffusion, **22**, 431, 525
- Ion Exchanger, **22**, 273



- Ion-Exchange Resins, **22**, 281, 287, 937; **25**, 314
- Ion Migration, **22**, 79
- Ion Selective Electrodes, **26**, 319
- Ion Transport, **22**, 774; **24**, 907, 1010, 1229
- Ion Types, **24**, 1237
- Ionic Concentration, **26**, 491
- Ionic Diffusion, **29**, 1341; **30**, 1895
- Ionic Interaction, **25**, 1535
- Ions, **27**, 293
- Iron Oxidation State, **26**, 237
- Iron Particles, **26**, 1435
- Iron Solubility, **23**, 785
- Irradiation, **21**, 426
- Isotope Geochemistry, **21**, 368
- Isotopes, **22**, 235, 882
- Isothermal Calorimeter, **30**, 301
- Jarosite, **21**, 563
- Joints, **25**, 689
- $K_2SO_4$ , **24**, 728
- Katz-Thompson Model, **24**, 443
- Kaolin, **21**, 575
- Kaolinite, **25**, 102
- Kinetic Analysis, **30**, 1017, 1655
- Kinetic Method, **24**, 863
- Kinetics, **21**, 683, 1148; **22**, 6; **23**, 93, 1253; **24**, 885, 1383; **25**, 63, 86, 572; **26**, 1435; **27**, 359, 1379; **28**, 231, 867, 1201, 1393, 1489, 1519, 1669; **29**, 9, 187, 567, 595, 599, 1039, 1299, 1513, 1575; **30**, 51, 473, 693, 1597, 1929
- Knowledge-Acquisition System, **29**, 1875
- KOH, **25**, 1043
- Kramers-Kronig Transform, **29**, 1685
- Kuwait, **21**, 1155
- Laminated Composites, **24**, 1185
- Langmuir Isotherm, **26**, 697
- Large Particles, **22**, 1059
- Large Scale, **26**, 949
- Laser Analyzer, **24**, 527
- Laser Diffraction, **21**, 709
- Laser Granulometry, **29**, 3
- Latex, **25**, 465, 503; **27**, 711, 1149, 1799, 1875
- Latex Modified Concrete, **27**, 861
- Latex Particles, **26**, 985
- Leachability, **23**, 792; **26**, 895, 1381
- Leaching, **22**, 375, 381, 397, 393, 399, 477, 903, 937; **24**, 99, 735; **25**, 311, 314, 1639; **26**, 1257, 1707; **27**, 515, 539, 971, 1747; **28**, 815; **29**, 179, 1261; **30**, 895
- Leaching Behavior, **30**, 1079
- Lead, **26**, 895, 1381; **29**, 885, 1189
- Lean Concrete, **21**, 137
- Li Compounds, **27**, 235
- Li Nitrite, **25**, 1647
- Li Salts, **23**, 885
- Light Absorption, **25**, 863; **26**, 1801
- Light Concrete, **30**, 1715
- Lightweight Aggregate, **22**, 47; **24**, 1423; **25**, 276; **26**, 1423; **27**, 1021; **29**, 611
- Lightweight Concrete, **26**, 181; **27**, 525; **29**, 1835
- Lightweight Slurries, **25**, 1305
- Ligninsulphonates, **27**, 185; **29**, 1769
- Lignite Ash, **25**, 1610
- Lignite Fly Ash, **24**, 1153
- Lime, **21**, 745; **22**, 577; **23**, 1389; **24**, 343; **25**, 265; **27**, 259; **28**, 53, 221
- Lime Content, **25**, 809
- Lime-Flyash, **22**, 589
- Lime-Fly Ash Cement, **30**, 803
- Lime-Fly Ash Pastes, **26**, 1351
- Lime Kiln, **26**, 1269
- Lime Mortars, **25**, 39; **27**, 777
- Lime-Pozzolan Pastes, **24**, 1485
- Lime-Sand Concrete, **26**, 1109
- Lime-Silica Cement, **24**, 1191
- Lime-Stabilisation, **29**, 975
- Limestone Cement, **30**, 1073
- Limestone Filler, **25**, 1667; **26**, 883
- Limestones, **21**, 853; **24**, 801, 1065; **26**, 1057, 1613; **30**, 7, 145, 1827
- Limitations, **25**, 299
- Liquid Composition, **26**, 1717
- Liquid Ion Concentration, **24**, 682
- Liquid Metal Porosimetry, **27**, 1333
- Lithium Compounds, **29**, 1271
- LMDC Test Method, **30**, 1581
- Loading Rate, **24**, 1286; **29**, 397
- Localization, **25**, 702
- Long-Term Behaviour, **25**, 113
- Long-Term Performance, **29**, 179, 699, 1289, 1555, 1647; **30**, 125, 843, 943, 1079, 1903
- Loss Moduli, **26**, 69
- Low  $C_3A$ , **27**, 1061
- Low-Energy Cement, **22**, 793
- Low-Level Waste, **22**, 339, 393
- Low Modulus Fibers, **27**, 1099
- Low Molecular Weight, **24**, 987
- Low Porosity, **23**, 187; **27**, 1481
- Low Porosity Pastes, **21**, 800
- Low Shrinkage, **24**, 765
- Low Sulfate, **25**, 271
- Low Temperature, **23**, 863; **24**, 127; **25**, 1766
- Low-Temperature Ceramics, **27**, 1667
- Low-Temperature Synthesis, **27**, 51
- Low Vacuum, **30**, 775
- Low-Velocity Impact Loading, **23**, 83
- Low W/C Ratio, **25**, 365
- LSF, **23**, 1268
- Macro Defect Free Cement, **29**, 121
- Macro-Sale, **22**, 1067
- Macroscopic, **25**, 1457
- Magic-Angle NMR, **21**, 355
- Magnesia, **30**, 1807
- Magnesium, **27**, 315; **29**, 389
- Magnesium Brine, **26**, 557
- Magnesium Oxychloride Cement, **29**, 1929
- Magnesium Silicate Formation, **30**, 411
- Magnesium Sulfate, **27**, 205
- Magnetic Properties, **28**, 453
- Magnetic Resonance Imaging, **28**, 261
- Magnetic Shielding, **25**, 939
- Magnetic Water, **30**, 599
- Magnetite, **29**, 1705
- Magnox Swarf, **22**, 293
- Manganese, **29**, 171
- Manhole Units, **22**, 35
- Manufacture, **24**, 533
- Margules Type Solid, **29**, 1091
- Marine, **26**, 513; **30**, 259
- Marine Environment, **24**, 661
- Marine Structures, **25**, 187
- MAS-NMR, **23**, 321, 811, 833, 1065; **24**, 319
- Masonry, **30**, 731
- Mass Increase, **25**, 617
- Mass Loss, **30**, 1915
- Material Identification, **29**, 1055
- Mathematical Model, **26**, 761
- Mathematical Modeling, **25**, 727; **29**, 1627; **30**, 419, 615, 1017
- Mathematical Treatment, **26**, 1831
- MDF Cements, **24**, 1185, 1509
- MDF Processing, **27**, 127
- Mean Field, **30**, 1853
- Measurement Validity, **24**, 641
- Mechanical Activation, **26**, 1843
- Mechanical Behavior, **24**, 473
- Mechanical Effects, **28**, 251
- Mechanical Loading, **30**, 25
- Mechanical Properties, **21**, 478, 601; **22**, 1192; **23**, 399; **24**, 214, 650, 1121, 1245, 1277; **25**, 249, 1385;

- 26, 49, 449, 535, 701; 27, 453, 539, 1817; 28, 349, 493, 859, 1179, 1373, 1445; 29, 87, 193, 215, 231, 241, 267, 427, 445, 455, 607, 637, 719, 847, 919, 1067, 1107, 1313, 1419, 1647, 1673, 1753, 1807, 1887, 1977; 30, 1, 101, 145, 315, 419, 553, 703, 739, 937, 981, 1131, 1443, 1689, 1903
- Mechanical Stability, 25, 961
- Mechanical Strength, 29, 1773
- Mechanical Treatment, 27, 1365
- Mechanisms, 22, 631; 23, 335, 761; 24, 62, 73, 1111; 25, 440, 779, 1633; 26, 717; 27, 665; 28, 103
- Mechanochemical Activation, 21, 51; 24, 937
- Median Barrier, 21, 917
- Median Pore Radius, 30, 1381
- Medium Temperature, 29, 785; 30, 1283, 1501
- Melamine Superplasticizers, 21, 765
- Membrane Curing, 24, 1463
- Membrane Potential, 27, 853
- Mercury Intrusion Porosimetry, 22, 970; 27, 93
- Mercury Porosimetry, 21, 297, 1165; 25, 741; 29, 585, 631, 933; 30, 19, 359, 1267, 1517
- Metakaolin, 23, 627; 25, 265; 26, 657, 1537, 1545; 27, 137, 147; 28, 83, 629, 803, 1109, 1157, 1309, 1317; 29, 997; 30, 209, 339, 561
- Meta-Kaolin, 27, 1307
- Metal Hydroxides, 27, 1249
- Metal Particles, 24, 1549
- Metallic Particles, 27, 1641; 29, 303
- Methods, 23, 55
- Methyl Cellulose, 25, 465
- Methylcellulose, 26, 535
- Mg, 22, 169; 26, 77
- Mg Oxychloride, 26, 1199
- Mg Oxychloride Cement, 26, 1203
- Mg-Phosphate, 26, 387
- Mg Phosphate Cement, 23, 254; 27, 1155
- Mg Silicate, 27, 315
- Mg Sulfate, 22, 707, 1047
- Mg<sup>2+</sup>Uptake, 21, 83
- MgO, 21, 1049; 22, 1; 23, 1268; 24, 343; 25, 51; 26, 1057; 28, 481, 811, 867, 1289, 1585; 29, 1365, 1847; 30, 315, 1663
- MgSO<sub>4</sub>, 23, 541; 26, 1013; 27, 1911
- Micro-Aggregate, 28, 171
- Micro-Concretes, 22, 319
- Micro-Fibers, 23, 1467
- Micro-Scale, 22, 1067
- Microanalysis, 24, 1347
- Microcracking, 21, 928; 22, 431; 23, 675; 26, 1493; 29, 287; 30, 651, 931, 943, 1289, 1453, 1979
- Microcrystalline Ca(OH)<sub>2</sub>, 24, 1191
- Microfiber Reinforcement, 26, 601
- Microfibers, 26, 1163
- Microfilters, 23, 962
- Microhardness, 24, 1299
- Micromechanics, 26, 83, 1567; 29, 201, 323, 839, 1455; 30, 731, 1299
- Micropore Structure, 21, 655
- Microscopy, 22, 903; 23, 329, 1283; 24, 473, 830; 26, 573; 28, 103, 411; 29, 3, 303
- Microstructure Development, 25, 522
- Microstructure Simulation Model, 21, 325
- Microstructures, 21, 179, 1137; 22, 23, 169, 503, 1011, 1027, 1192, 1224; 23, 399, 518, 541, 581, 663, 874, 905, 1317; 24, 1, 633, 671, 1403, 1558, 1347; 25, 319, 485, 715, 1165, 1491, 1581, 1781; 26, 101, 295, 427, 593, 663, 1479; 27, 329, 619, 711, 869, 1465, 1501, 1701; 28, 285, 401, 877, 1179, 1429, 1571, 1639, 1687; 29, 17, 133, 171, 179, 349, 369, 585, 615, 667, 699, 805, 839, 933, 1013, 1019, 1067, 1131, 1181, 1189, 1299, 1433, 1535, 1561, 1591, 1605, 1619; 30, 1, 101, 145, 379, 457, 553, 571, 607, 683, 715, 817, 855, 881, 943, 977, 1097, 1113, 1443, 1517, 1551, 1609, 1723, 1747, 1815, 1835, 1853, 1947, 1983
- Microwave, 21, 795, 863; 25, 1086; 27, 1419
- Microwave Cured Concrete, 25, 136
- Microwave Curing, 25, 265; 27, 427, 463
- Microwave Processing, 26, 41; 28, 1379; 29, 241
- Microwave Sintering, 29, 1611
- Migration, 29, 687, 1463, 1469
- Migration Experiments, 24, 1214
- Migration Tests, 29, 417, 1799; 30, 1581, 1885
- Mineral Additions, 25, 1218
- Mineral Additives, 29, 3; 30, 1477
- Mineral Admixtures, 24, 424, 1111, 1327; 25, 709, 715, 1225; 26, 113, 1073; 27, 1901; 30, 1543
- Mineral Component, 30, 1349
- Mineral Composition, 25, 1103, 1103
- Mineral Powder, 26, 101
- Mineral Stability, 25, 1264
- Mineralization, 30, 1113
- Mineralizers, 25, 79, 376; 28, 1093; 30, 967
- Mineralogy, 22, 707; 23, 1351
- Minerals, 23, 693
- Minor, 23, 59
- Minor Components, 27, 1123
- Minor Elements, 23, 131
- Miscibility, 29, 1857
- Mix Design, 29, 1875
- Mix Proportioning, 25, 1273
- Mixed Mode Fracture, 26, 125
- Mixing, 29, 1491
- Mixing Technique, 24, 1299
- Mixing Time, 24, 1455
- Mixture Proportioning, 29, 323, 1863; 30, 1031
- Mixtures, 24, 335
- Mn, 27, 1203
- Model Prediction, 25, 9
- Modeling, 21, 21, 219, 941; 22, 477, 489, 503; 23, 1317; 25, 741, 1605; 26, 1257; 27, 761, 1543; 28, 251, 349, 365, 391, 969, 1797; 29, 79, 99, 201, 361, 487, 615, 1027, 1039, 1047, 1201, 1313, 1513, 1591, 1597, 1663, 1727, 1807, 1977; 30, 37, 217, 247, 291, 521, 693, 709, 731, 809, 855, 953, 1079, 1121, 1151, 1215, 1245, 1647, 1801, 1853, 1895, 1929, 1955
- Models, 22, 497, 1001; 23, 131; 24, 885; 25, 276, 319, 948, 1703; 26, 345, 457, 1567; 27, 245, 883, 1113; 28, 285, 439; 30, 699, 1723
- Moderate Strength, 23, 507
- Modified Cement Pastes, 23, 803
- Modulus, 25, 177; 27, 1135
- Modulus of Elasticity, 28, 93; 30, 1501
- Moist Conditions, 26, 567
- Moist Curing, 29, 497
- Moisture, 21, 137; 23, 761; 24, 605; 27, 1429
- Moisture Content of Aggregate, 29, 611
- Moisture Gradients, 23, 951
- Moisture Loss, 24, 1463
- Moisture Properties, 29, 339

- Moisture Transport, **25**, 1703  
Molecular Dynamics, **27**, 1581  
Molecular Weight, **27**, 185  
Monitoring, **22**, 459  
Monocarboaluminate, **24**, 563  
Monoliths, **27**, 657  
Monosulfoaluminate, **29**, 861  
Monosulphate, **22**, 671; **28**, 763; **29**, 1841, 1943; **30**, 233  
Montreal, **22**, 1011  
 $\text{MoO}_3$ , **27**, 917  
Mori-Tanaka Theory, **26**, 83  
Morphology, **23**, 484; **24**, 1492  
Mortar Expansions, **25**, 903, 1647  
Mortar Matrix, **27**, 437  
Mortar Properties, **24**, 580  
Mortar Strength, **24**, 791  
Mortars, **21**, 120, 478, 496; **22**, 641, 736, 903, 1011, 1141; **23**, 7, 13, 247, 541, 711, 1259, 1480; **24**, 621, 728, 765, 776, 842, 1199, 1549; **25**, 376, 449, 689, 790, 809, 1360, 1747; **26**, 601, 1045, 1245; **27**, 259, 697, 845, 1149, 1225, 1681, 1731, 1829; **28**, 221, 577, 665, 947, 1057, 1417, 1505; **29**, 17, 55, 107, 241, 407, 427, 743, 819, 893, 945, 1061, 1673, 1743, 1753, 1773, 1781, 1905; **30**, 19, 83, 145, 209, 323, 327, 553, 635, 731, 757, 1131, 1209, 1413, 1495, 1679, 1731, 1773, 1807  
Mössbauer, **21**, 31, 484  
Mullite, **30**, 175  
Mullite Microspheres, **25**, 1305  
  
 $\text{Na}_2\text{CO}_3$ , **24**, 718  
 $\text{Na}_2\text{O}$ , **23**, 221  
 $\text{Na}_2\text{O}$  Content, **24**, 1092  
 $\text{Na}_2\text{PO}_3\text{F}$ , **26**, 405  
 $\text{Na}_2\text{SO}_4$ , **26**, 27, 195, 1013; **27**, 1659  
 $\text{NaCl}$ , **24**, 621; **27**, 29; **28**, 25  
 $\text{NaOH}$ , **28**, 13, 25, 245  
 $\text{NaOH}$  Treatment, **27**, 1  
Natural Polymers, **28**, 41  
Natural Pozzolans, **24**, 463; **25**, 647  
NBRI Accelerated Test, **21**, 953  
NBRI Test, **21**, 1069  
Nernst-Einstein Equation, **27**, 293  
Nernst Equations, **24**, 907  
Nernst-Planck, **29**, 1341  
Neural Networks, **29**, 1875; **30**, 1245, 1277  
Neutral Salts, **22**, 609  
Neutron Diffraction, **25**, 639; **27**, 551; **30**, 191  
Neutron Scattering, **30**, 1853  
New Concrete, **23**, 431; **25**, 491  
New Method, **24**, 1267  
Nickel, **29**, 545, 651, 1949, 1959  
Nickel Particulates, **27**, 23  
 $\text{NiCl}_2$ , **23**, 833  
Nitrate, **28**, 509; **30**, 307  
Nitric Acid, **24**, 551, 1495; **26**, 475  
Nitrite, **29**, 315  
NMR, **27**, 407, 1319; **29**, 1131  
Non-Evaporable Water, **21**, 800  
Non-Expansive Properties, **25**, 1726  
Non Steady-State, **24**, 1214  
Notch, 1 NMR, **21**, 391  
Novel System, **27**, 1533  
Nuclear Safety, **27**, 415  
Nuclear Wastes, **22**, 311  
Numerical Model, **30**, 1581  
Numerical Modeling, **27**, 1261  
Nylon Fiber Mats, **24**, 1185  
Nyquist Criterion, **29**, 1689  
  
 $^{17}\text{O}$ , **23**, 1065  
 $\text{OH}^-$  Change, **21**, 61  
Oil Palm Shells, **29**, 619  
Oil Well Cements, **21**, 663, 911; **23**, 988, 1245; **24**, 285, 479; **26**, 707, 1753; **29**, 27, 523; **30**, 1551, 1709, 1759, 1767  
Oil Wells, **23**, 347  
Oilfield Cements, **21**, 109  
Old Concretes, **24**, 633, 1051; **25**, 491  
Opal, **23**, 811; **27**, 1379  
OPC, **23**, 196; **30**, 1485  
Opening Dimension, **27**, 381  
Operative Dentistry, **29**, 645  
Optimization, **25**, 1490, 1610; **27**, 463  
Organic Acids, **25**, 955; **29**, 1841  
Organic Admixtures, **27**, 1451  
Organic Fibers, **26**, 791  
Organic Materials, **28**, 487, 811, 1101, 1537; **29**, 9, 737  
Organic Solvent, **24**, 987  
Organics, **23**, 1085  
Orientation, **23**, 599  
Origin, **22**, 1130  
Oscillating Rheometer, **21**, 109  
Oscillatory Rheology, **21**, 1111  
Oscillatory Shear, **23**, 273  
Overloading, **22**, 927  
Overpacks, **22**, 351  
Oxidation, **26**, 1499; **27**, 1627; **28**, 75  
Oxidation State, **27**, 215  
Oxychloride Cement, **29**, 1365  
Oxygen, **21**, 368; **22**, 235, 882; **23**, 33; **24**, 1165; **25**, 819  
Oxygen Diffusion, **21**, 309  
Oxygen Diffusivity, **21**, 273  
Ozone, **27**, 643; **28**, 183  
 $^{31}\text{P}$ , **27**, 407  
P, **27**, 1203  
Packing, **30**, 1715  
Packing Density, **24**, 997; **27**, 685, 1481; **29**, 1721; **30**, 351  
Palm Kernel Shell Aggregate, **21**, 551  
Palmnut, **26**, 1045  
Panel Test, **29**, 1827  
Parameters, **27**, 93  
Particle Fabrication, **22**, 331  
Particle Morphology, **26**, 225  
Particle Shape Analysis, **30**, 351  
Particle Size Distribution **27**, 685; **28**, 749, 907, 921, 1147, 1217, 1309, 1317, 1429, 1725; **29**, 3, 507, 553, 615, 743, 839, 1201, 1299, 1455, 1663; **30**, 1543, 1767  
Particle Sizes, **23**, 693, 917; **25**, 243, 149; **26**, 1399; **27**, 619, 907; **28**, 63  
Paste/Aggregate Interface, **22**, 891  
Paste Mineralogy, **30**, 1869  
Paste Rheology, **27**, 907  
Paste-Rock Interface, **25**, 345  
Pastes, **21**, 297, 478, 558, 718, 999, 1111, 1165; **22**, 169, 541, 695, 707, 1027; **23**, 247, 273, 399, 1095; **24**, 203, 243, 413, 752; **25**, 147, 157, 231, 605, 919; **26**, 69 Pb, 377; **27**, 23, 37, 137, 147, 1681, 1731; **30**, 803, 1655  
Pectolite, **29**, 1759  
Penetration, **22**, 47; **24**, 661; **25**, 257  
Percolation, **21**, 325; **24**, 25  
Percolation Theory, **30**, 1861  
Perforation, **23**, 83  
Performance, **22**, 299, 339; **26**, 1673; **30**, 259  
Permeabilities, **26**, 1325  
Permeability, **21**, 441, 941; **22**, 503, 541; **23**, 399, 518, 554, 683, 1317; **24**, 633, 671, 854, 913; **25**, 769; **26**, 1779; **27**, 293, 381, 761, 1179, 1225, 1633; **28**, 643, 961; **29**, 497, 523, 687, 933, 1085, 1225, 1239, 1379, 1475, 1921, 1995; **30**, 643, 937, 973, 1435, 1815, 1903, 1911, 1969  
Permeability AC Method, **28**, 7  
Permeameter, **21**, 257  
Permeation, **26**, 1767  
Permittivity, **21**, 863

- Petrography, **22**, 949; **23**, 329; **26**, 825; **27**, 227, 321, 329; **28**, 1479; **29**, 273, 287, 1277, 1881; **30**, 1747
- PFA **30**, 1225
- PFA Concrete, **23**, 554
- pH, **21**, 1023; **22**, 259; **23**, 294; **24**, 1433; **25**, 1469; **26**, 749; **27**, 947, 1271, 1747; **28**, 19, 357, 815, 1289, 1639; **29**, 159, 315, 527, 1271, 1583; **30**, 529, 895, 1079, 1801
- pH Effect, **24**, 1515
- Phase Compatibility, **23**, 1331
- Phase Composition Determination, **29**, 1627
- Phase Composition, **30**, 1835
- Phase Equilibria, **25**, 870
- Phase Relations, **23**, 627
- Phase Transformation Kinetics, **30**, 1853
- Phase Transformation, **29**, 805
- Phases, **21**, 873; **22**, 241
- Phenol Resin **27**, 1393
- Phenol Resin Precursor, **25**, 1191; **29**, 121
- Phenol-Cement Mixtures, **23**, 792
- Phenomenological Model, **30**, 1885
- Phosphate Bonding, **22**, 783
- Phosphate Cement **28**, 141; **29**, 389; **30**, 1807
- Phosphates, **21**, 66; **22**, 1192; **25**, 1305; **26**, 1661; **30**, 1013
- Phosphogypsum, **23**, 115; **26**, 1083, 1737
- Phosphoric Acid, **28**, 141
- Phosphorous Slag, **30**, 1169
- Physical and Mechanical Properties, **26**, 669
- Physical Properties, **26**, 101, 1065; **27**, 1817, 1861; **28**, 859; **29**, 349, 637, 983, 997, 1117, 1397, 1403, 1635, 1819; **30**, 59, 385, 497, 571, 1225, 1453, 1551, 1597, 1755
- Physico-Chemical Studies, **27**, 227
- Physics, **27**, 1543
- Pigment, **27**, 1513
- Pirssonite, **24**, 62
- Pitting, **25**, 257
- Plain Cements, **23**, 1357
- Plant Fiber, **30**, 1983
- Plaster, **27**, 947
- Plasticizers, **25**, 685
- Plating Wastes, **24**, 707
- PNS Superplasticizer, **30**, 887
- Point Count, **29**, 273
- Poisson, **29**, 1341
- Polarization, **23**, 1273
- Polarization Resistance, **26**, 691
- Polarography, **23**, 603
- Pollutants **28**, 125
- Polyacrylonitrile, **24**, 896
- Polycarboxylate, **30**, 197
- Polyester Resin, **30**, 171
- Polymer Additive, **25**, 497
- Polymer Admixtures, **23**, 301; **26**, 189
- Polymer-Cement Composite, **25**, 1191
- Polymer Cement Mortars, **21**, 251
- Polymer Concrete, **22**, 621; **30**, 171
- Polymer Effects, **21**, 242
- Polymer Impregnation, **23**, 640
- Polymer Modification, **21**, 727; **24**, 1492
- Polymer Modified Cement, **21**, 169, 535; **25**, 127
- Polymer-Modified Mortars, **27**, 171, 1787
- Polymer-Modified Paste, **21**, 983
- Polymer Morphology, **25**, 271
- Polymers, **21**, 309; **23**, 484; **27**, 643, 1099; **28**, 209, 341, 629, 649, 783, 877, 1687, 1809; **29**, 231, 407, 747, 847, 909, 1077, 1541; **30**, 183, 227
- Polymorphism, **29**, 1851, 1857
- Polymorphs, **21**, 757; **30**, 1361
- Polyolefin Fiber, **30**, 391, 403
- Polypropylene, **24**, 896; **29**, 1597
- Polypropylene Fiber Reinforcement, **25**, 511
- Polypropylene Fibers, **24**, 671; **25**, 293; **28**, 75; **30**, 63
- Polysaccharide Gums, **24**, 243
- Pond Ash, **25**, 459
- Ponding, **25**, 395
- Pore Diameter, **24**, 86
- Pore Distribution, **24**, 1055
- Pore Fluid, **27**, 337
- Pore Liquid, **21**, 269
- Pore Pressure, **30**, 1915
- Pore Saturation, **23**, 368
- Pore Size, **24**, 463; **27**, 619
- Pore Size Distribution, **21**, 309; **22**, 541; **23**, 1223; **25**, 695, 769, 980; **26**, 1545; **28**, 699, 1011, 1467, 1621, 1695; **29**, 79, 133, 507, 577, 585, 933, 1753; **30**, 1, 19, 101, 191, 447, 465, 521, 1401, 1517, 1879, 1929
- Pore Size Evolution, **29**, 209
- Pore Solution, **21**, 1035; **23**, 104, 1159, 1357; **24**, 8, 221; **25**, 1423; **26**, 27, 1809; **27**, 29, 147, 1841; **28**, 995, 1165, 1669; **29**, 99, 159, 315, 473, 595, 873, 1261, 1271, 1583, 1893, 1915, 2005; **30**, 339, 1063, 1731, 1801, 1987
- Pore Solution Expression, **24**, 456; **25**, 531
- Pore Structure, **21**, 229, 1006; **23**, 1153; **24**, 25, 214, 841, 1255; **25**, 417, 790; **26**, 1619, 1789; **27**, 995, 1225; **28**, 83; **29**, 1181; **30**, 259, 1169, 1381
- Pore Volume, **24**, 463
- Pore Water, **22**, 129
- Pore Water Viscosity, **23**, 843
- Pores, **22**, 405
- Porosimetry, **24**, 443
- Porosity, **21**, 120, 441; **22**, 451, 1077; **23**, 399, 700, 853; **24**, 433, 1044, 1165, 1390, 1444; **25**, 365, 819; **26**, 35, 215, 449, 539; **27**, 539; **28**, 161; **29**, 1721; **30**, 561, 1255, 1565
- Porous Cementitious Materials, **23**, 1007
- Porous Cements, **23**, 531
- Porous Concretes, **29**, 1077
- Porous Media, **30**, 1895
- Porous Stones, **26**, 861
- Portland-Alumina Cement, **27**, 1419
- Portland Cement, **26**, 397; **27**, 1343; **28**, 713, 1571; **29**, 287, 673, 713, 747, 1373, 1627, 1999; **30**, 429, 585, 693, 803, 267, 1131, 1185, 1209, 1349, 1671
- Portland Cement Clinker, **26**, 41
- Portland Cement Manufacture, **24**, 613
- Portland Cement Setting, **22**, 1130
- Portland Limestone Cement, **29**, 1331; **30**, 1679
- Portland Pozzolana Cements, **25**, 553
- Portlandite, **24**, 343; **27**, 137
- Portlandite/Calcite, **29**, 1749
- Portlandite Consumption, **24**, 1133
- Potassium, **29**, 1893
- Potential Gradient, **26**, 1039
- Potential Measurements, **26**, 683
- Power, **27**, 463
- Pozzolan Effect, **27**, 1911
- Pozzolan Fineness, **24**, 1485
- Pozzolana, **27**, 279, 889
- Pozzolan Activity, **24**, 1133; **25**, 265, 26, 203, 1065, 1073; **29**, 945
- Pozzolan Effect, **29**, 951
- Pozzolan Materials, **25**, 961
- Pozzolan Reaction, **26**, 93; **29**, 1167; **30**, 204, 607, 817
- Pozzolan Reactivity, **29**, 1791



- Pozzolanicity, **25**, 102, 395; **30**, 13  
 Pozzolans, **22**, 95; **23**, 46, 1389; **24**, 728, 966, 1444; **25**, 1713; **26**, 943, 1277; **27**, 1307, 1365, 1513; **28**, 567, 749, 803, 1525; **29**, 37, 87, 215, 249, 487, 623, 637, 867, 1277, 1387, 1773, 1781; **30**, 51, 91, 253, 339, 437, 497, 607, 757, 1641  
 Precast Concrete, **22**, 35  
 Precast Units, **30**, 345  
 Precasting, **25**, 1  
 Precipitator Dust, **26**, 1269  
 Precision, **24**, 1267  
 Prediction, **21**, 523; **27**, 487, 883  
 Pre-Existing Cracks, **24**, 1015  
 Pre-Hydration, **25**, 1295  
 Premeability Control, **27**, 1047  
 Preparation, **21**, 1129  
 Pre-rusted Steel, **26**, 501  
 Pre-Saturation, **22**, 515  
 Pressure, **24**, 259; **27**, 811  
 Pressure Effect, 456  
 Pretreatment, **21**, 297  
 Pre-Wetting, **27**, 171  
 Probabilistic Model, **21**, 963  
 Product Composition, **24**, 1495  
 Product Form, **30**, 1139  
 Production, **27**, 1037  
 Profiles, **26**, 1695  
 Prolonging, **27**, 721  
 Propanol, **26**, 1301  
 Properties, **21**, 378, 455; **22**, 1101; **23**, 1016; **24**, 285, 424, 1403; **25**, 353; **26**, 1315, 1619, 1629; **27**, 1501; **28**, 329; **30**, 1679  
 Proton NMR Relaxation, **23**, 1  
 Protons, **21**, 391; **23**, 169; **27**, 1319  
 Pullout, **26**, 267; **27**, 925  
 Pullout Test, **29**, 1027  
 Push-Out Strength, **30**, 281  
 Pyramant, **22**, 103  
 Quality, **24**, 1423  
 Quantitative Determination, **23**, 603  
 Quantitative X-Ray Diffraction, **29**, 1999  
 Quantum Chemistry, **26**, 955; **27**, 1085  
 Quantum Chemistry Calculations, **24**, 1311  
 Quasibrittle Fracture, **29**, 1055  
 Quasielastic Neutron Scattering, **28**, 231  
 Quick Cements, **24**, 801  
 Quartz, **25**, 243, 249  
 Quartz Grains, **25**, 835  
 Radioactive Waste, **21**, 16, 941; **22**, 201, 419, 477, 571; **23**, 896; **27**, 1919; **28**, 847, 1753; **29**, 479; **30**, 1619, 1947, 281  
 Radioisotope Imaging, **30**, 809  
 Radionuclides, **22**, 247  
 Radio Wave Heater, **26**, 677  
 Railroad Ties, **24**, 1286; **26**, 309; **27**, 107  
 Railway Ties, **26**, 999  
 Rapid-Hardening Composites, **21**, 1028  
 Rapid Repair, **23**, 254  
 Rapid Sintering, **27**, 989  
 Rapid Test, **25**, 924  
 Rate, **22**, 1019  
 Rate Decrease, **24**, 1475  
 Raw Materials, **25**, 459; **26**, 397  
 Raw Mix, **29**, 303  
 Raw Mixture, **23**, 1351  
 Reactance, **27**, 845  
 Reaction, **24**, 948; **26**, 697; **28**, 567, 811, 1141, 1525, 1605; **29**, 55, 79, 249, 1019, 1099, 1727; **30**, 51, 1151, 1647, 1955  
 Reaction Kinetics, **22**, 112; **30**, 419  
 Reaction Mechanisms, **24**, 221  
 Reactive Aggregate, **24**, 621  
 Reactive Belites, **26**, 1227  
 Reactive Powder Concrete, **25**, 1491, 1501; **26**, 9; **30**, 1861  
 Reactivity, **21**, 745; **23**, 41; **25**, 1691; **26**, 1213; **27**, 63; **29**, 1569  
 Re-Alkalization, **24**, 1051  
 Reappraisal, **22**, 525  
 Rebars, **21**, 38; **23**, 1130; **25**, 1397  
 Red Mud, **27**, 1037, 1513  
 Redox Reactions, **22**, 1161  
 Reduced Rate, **25**, 1667  
 Reduced Shrinkage, **27**, 1357  
 Reduction, **27**, 1851  
 Refining, **24**, 601  
 Refractory, **22**, 736  
 Refractory Mortars, **22**, 815  
 Refractory Cement, **25**, 1523; **29**, 713; **30**, 1597  
 Regulated Set Cements, **23**, 700  
 Reinforced Concrete, **21**, 625, 917; **29**, 561  
 Reinforced Grouts, **24**, 671  
 Reinforcement, **21**, 589; **23**, 554, 618; **24**, 1055; **26**, 215, 1151, 1485; **27**, 643, 649, 1271, 1811; **28**, 167, 183, 321, 477, 577, 649, 795, 995, 1119, 1133, 1737, 1775; **29**, 427, 1541; **30**, 327, 1047, 1731  
 Reinforcement Bond, **23**, 609  
 Reinforcement Corrosion, **25**, 893, 1543  
 Relationships, **23**, 1317  
 Release, **22**, 465  
 REM, **22**, 459  
 Remanent Magnetism, **21**, 489  
 Repair, **23**, 301; **27**, 1261; **28**, 221; **29**, 1067; **30**, 259  
 Repair Material Polymers, **27**, 601  
 Repair Mortars, **29**, 95  
 Repair of Concrete, **29**, 389; **30**, 1807  
 Repellant, **28**, 19  
 Repetition, **25**, 803  
 Replacement Level, **26**, 1537  
 Representative Elementary Volume, **29**, 1341  
 Residual Sludge, **26**, 521  
 Resin Matrix, **21**, 614  
 Resistance, **24**, 1133  
 Resistance Curves, **29**, 397  
 Resistance to Thermal Shock, **29**, 1215  
 Resistivity, **23**, 368 724; **24**, 1373; **26**, 539, 985, 1301, 1779; **27**, 1811  
 Resistivity Methods, **23**, 1178  
 Restraint, **21**, 229; **23**, 925; **26**, 9  
 Retardation, **22**, 653, 725; **23**, 592; **24**, 433, 707; **25**, 553; **26**, 799; **27**, 267, 947, 1155; **28**, 1133; **29**, 885, 1513; **30**, 267, 923, 1013, 1375, 1755  
 Retarder, **23**, 1245  
 Retrofit, **30**, 799  
 Retrogression, **25**, 240  
 Reuse, **30**, 1773  
 Reversibility, **27**, 833  
 Rheology, **21**, 911, 1148; **23**, 939; **24**, 243, 291; **25**, 39; **26**, 283, 707; **27**, 1155, 1875; **28**, 523, 629, 687, 1297; **29**, 27, 71, 223, 237, 523, 591, 753, 761, 867, 1159, 1441, 1491; **30**, 511, 809, 827, 1263, 1477, 1551, 1633, 1663, 1709, 1759  
 Rheology Slurries, **26**, 387  
 Rheometry, **27**, 869; **30**, 1551  
 Rice Husk Ash, **22**, 577; **23**, 387; **24**, 613; **26**, 963; **29**, 37; **30**, 13  
 Rietveld Method, **24**, 923  
 Rietveld Refinement, **26**, 77  
 Rim, **23**, 309  
 Rock, **23**, 567  
 Rock-Cement, **22**, 678  
 Roller Compacted Concrete, **28**, 309  
 Rubber, **27**, 1135  
 Rubberized Concrete, **25**, 304; **27**, 1893  
<sup>29</sup>Si, **23**, 1065, 1169; **25**, 1435; **27**, 407  
<sup>29</sup>Si-MAS-NMR Spectroscopy, **29**, 1575



- 29-Si NMR, **23**, 480  
 Salicylaldehyde, **24**, 542  
 Salt, **21**, 38  
 Salt Content, **26**, 1753  
 Salt Crystallization, **29**, 1347  
 Salt Slag, **30**, 1131  
 Sand, **24**, 580; **26**, 1361  
 Sand Blasting, **27**, 679  
 Sand Concrete, **23**, 663  
 Sandcrete, **30**, 13  
 Saponin, **30**, 1313  
 Scaling, **26**, 1639  
 Scatter, **25**, 1655  
 Scaling Resistance, **26**, 1555  
 Scanning Acoustic Microscopy, **29**, 287  
 Schikorr Reaction, **30**, 1941  
 Schistosity, **22**, 949  
 Scrap, **27**, 1135  
 Scrap Polymer Pyrolysis, **25**, 1497  
 Sea Water, **26**, 1809  
 Sealers, **22**, 1141; **27**, 1561  
 Secondary Formation, **26**, 195  
 Section Analysis, **29**, 273  
 Segregation, **29**, 261  
 Self-Cure Concrete, **25**, 1153  
 Self-Desiccation, **25**, 157, 1457; **27**, 1553; **29**, 45, 611  
 Self-Healing, **25**, 1781; **26**, 55  
 Self-Leveling Concrete, **29**, 261  
 Self-Sealing, **24**, 633  
 SEM, **21**, 388, 835, 905; **22**, 67, 678, 1027; **24**, 841, 1140; **25**, 627; **27**, 1333; **28**, 749, 887; **29**, 27, 287, 323, 355, 369, 719, 1505, 1561, 1773, 1881; **30**, 1, 457, 775, 849, 1267, 1527, 1609, 1747  
 SEM Backscatter, **26**, 3  
 Semi-Lightweight Concrete, **27**, 15  
 Sensing, **28**, 183  
 Sensitivity, **26**, 1629  
 Separate Grinding, **23**, 651  
 Sepiolite, **25**, 39; **28**, 125  
 Service Life, **23**, 1130; **27**, 747; **30**, 1929  
 Service Life Model, **29**, 827  
 Service Life Predictions, **30**, 1215  
 Set Accelerators, **23**, 177, 885; **25**, 1766  
 Set Retarders, **21**, 663  
 Setting, **22**, 1, 1115; **24**, 682; **25**, 1147, 1523; **28**, 141, 605  
 Setting Process, **30**, 1671  
 Setting Time, **24**, 1237; **29**, 389  
 Sewage Sludge, **30**, 1671  
 Sewage Sludge Ash, **26**, 1389  
 SFM, **24**, 1153  
 Shaft Kiln, **25**, 459  
 Shale Ash, **27**, 279  
 Shallow Immersion, **25**, 999  
 Shape, **27**, 1281  
 Shape Analysis, **29**, 1403  
 Shear, **27**, 437  
 Shear Behavior, **25**, 969  
 Shear Field, **27**, 869  
 Shear Fracture, **25**, 1031  
 Shear Stress, **25**, 933  
 Shear Thickening, **30**, 1477  
 Shielding, **21**, 426; **26**, 1467  
 Shotcrete, **21**, 896; **25**, 293; **29**, 753  
 Shredding, **26**, 1489  
 Shrinkage, **22**, 159; **23**, 925; **24**, 1085; **25**, 1075, 1747; **27**, 601, 1429, 1659; **28**, 985, 1023, 1405, 1445, 1467, 1505; **29**, 113, 455, 567, 577, 607, 659, 899, 909, 1225, 1597, 1619, 1655, 1835; **30**, 125, 791, 943, 1367, 1401, 1597, 1701  
 Shrinkage Cracking, **26**, 9  
 Shrinkage-Compensated Cement, **24**, 267  
 Si, **26**, 77  
 Silane, **29**, 773, 1107, 1117; **30**, 1175  
 Silica, **23**, 1259; **27**, 1787; **30**, 817  
 Silica-Alumina Gels, **22**, 1216  
 Silica Concrete, **26**, 1683  
 Silica Fume, **21**, 316, 462, 691, 800, 819, 844, 1006, 1015, 1035; **22**, 15, 597, 961, 1059; **23**, 104, 157, 480, 592, 1480; **24**, 25, 95, 361, 752, 1044; **25**, 365, 395, 543, 1311, 1273, 1360, 1567, 1591, 1615; **26**, 63, 355, 1479, 1639; **27**, 75, 395, 577, 825, 833, 1659, 1667, 1799, 1825, 1851; **28**, 13, 271, 423, 487, 493, 533, 955, 961, 1353, 1405, 1505, 1537, 1571; **29**, 45, 79, 133, 193, 423, 451, 497, 537, 753, 773, 785, 813, 819, 917, 945, 1077, 1107, 1117, 1207, 1239, 1281, 1289, 1397, 1427, 1575, 1989; **30**, 59, 145, 241, 291, 437, 579, 661, 895, 923, 943, 953, 1121, 1139, 1175, 1225, 1283, 1295, 1305, 1427, 1501, 1655, 1701, 1791  
 Silica Solubility, **22**, 653  
 Silicate Anions, **21**, 1015  
 Silicate Phases, **26**, 1057  
 Silicates, **27**, 1561  
 Siliceous Carbonate Aggregates, **21**, 1069; **27**, 1561  
 Silicoferrochromium Fume, **25**, 387  
 Silts and Clay, **30**, 865  
 Similarities, **21**, 750  
 Simulation, **22**, 891; **25**, 319, 522; **27**, 1591  
 Single Crystals, **27**, 1439  
 Sintering, **22**, 139; **25**, 79; **26**, 181; **27**, 979  
 Sintering Kinetics, **25**, 1257  
 Sisal, **29**, 1597  
 Size Effects, **22**, 970; **25**, 408; **27**, 1031, 1281  
 Sizing, **24**, 695; **26**, 1389  
 Slag, **21**, 345, 410, 523, 819; **22**, 95, 1019, 1101, 1216; **23**, 518; **24**, 335, 801; **26**, 1381, 1707, 1717, 1767; **27**, 359, 825, 833, 1791, 1825, 1841, 1851, 1875; **30**, 823, 1277  
 Slag Blending, **27**, 937  
 Slag Blends, **26**, 139, 1029  
 Slag Cement, **23**, 442; **25**, 593, 883; **23**, 407  
 Slag Content, **23**, 407  
 Slag-Cement Blends, **21**, 359; **25**, 1086  
 Slag Granulation, **24**, 483  
 Slag Pastes, **25**, 561; **26**, 1013  
 Slag Replacement, **25**, 1445  
 Slage Cement, **27**, 75  
 Slump, **21**, 401, 575; **28**, 177  
 Slump Loss, **24**, 1455; **30**, 1489  
 Slurry Density, **24**, 479  
 Small-Angle Neutron Scattering, **24**, 514  
 Small Angle X-Ray Scattering, **24**, 605, 1025; **25**, 147; **29**, 631  
 SO<sub>3</sub>, **28**, 299  
 SO<sub>4</sub><sup>2-</sup>, **23**, 294  
 Soak-Calcinating, **25**, 102, 1043  
 Sodium, **24**, 1229; **29**, 1759, 1893  
 Sodium Carbonate Formation, **30**, 411  
 Sodium Effect, **22**, 229  
 Sodium Ions, **25**, 1311  
 Sodium Lignosulfonate, **25**, 671  
 Sodium Phosphate, **25**, 91  
 Sodium Polyphosphate, **29**, 1969  
 Sodium Silicate, **26**, 799; **27**, 657  
 Sodium Sulphate, **25**, 1360 Na<sub>2</sub>SO<sub>4</sub>, 15; **26**, 1683; **30**, 1169, 1527  
 Softening, **21**, 545; **25**, 702  
 Softening Law, **29**, 1055  
 Soil, **29**, 673  
 Soil Cement, **21**, 137  
 Sol-Gel, **21**, 66  
 Solar-Powered Car, **29**, 121  
 Solid Phase Reaction, **25**, 1417

- Solid Solution, **23**, 422; **24**, 1413; **27**, 1203, 1649
- Solid State NMR, **21**, 509; **23**, 169, 1169
- Solid State NRM, **25**, 1435
- Solid Wastes Ash, **25**, 1347
- Solidification, **22**, 589; **23**, 773; **25**, 658, 671
- Solidification/Stabilization, **27**, 1533
- Solubility, **21**, 991; **22**, 241, 531, 671, 1179, 1216; **24**, 563, 1515; **29**, 861; **30**, 1361
- Solution, **22**, 663; **24**, 743; **25**, 1043; **26**, 1369, 1727
- Solution Convection, **25**, 1159
- Solvent Exchange, **24**, 1255; **30**, 359, 1465
- Sorption, **27**, 747
- Sorptivity, **26**, 1189; **30**, 1255
- Space-Filling, **27**, 1691
- Spacing Factor, **29**, 273
- Spain, **25**, 1755
- Spalling, **30**, 1915
- Specific Basic Creep, **30**, 1465
- Specific Energy Dissipation, **24**, 1423
- Specific Gravity, **25**, 1469
- Specific Ions, **22**, 609
- Specific Strength, **29**, 951; **30**, 71
- Specific Surface, **23**, 1237
- Speckle Laser, **23**, 1340
- Spectrofluorimetry, **22**, 663
- Spectrophotometry, **24**, 948
- Spectroscopy, **29**, 1815; **30**, 535
- Spent Ion Exchange Resins, **22**, 375
- Sphere, **27**, 495
- Spherical Cement, **28**, 63; **29**, 553
- Splitting, **27**, 381
- SSPF, **30**, 1841
- Stability, **21**, 1023; **22**, 743; **24**, 874, 1335; **26**, 729; **28**, 53, 75, 841, 877; **29**, 479, 1441, 1685, 1689; **30**, 1671
- Stability (Deformation), **29**, 923
- Stabilization, **25**, 658, 671; **29**, 673
- Stages, **22**, 577
- Staining, **27**, 1407
- Stainless Steel, **26**, 1151
- Standards, **26**, 1451
- Static Filtration, **23**, 1431
- Static Loading, **25**, 803
- Steam Curing, **24**, 1015; **26**, 153, 1505; **29**, 497; **30**, 1993
- Steam Curing Effect, **24**, 1305
- Steel, **21**, 635; **22**, 27, 103; **23**, 33, 1273, 1380; **24**, 38, 203, 313, 1245; **25**, 257, 376, 939; **26**, 253, 1499, 1593
- Steel Corrosion, **21**, 316; **22**, 56; **23**, 1418; **26**, 683, 691
- Steel Fiber, **21**, 158; **26**, 657, 1639; **27**, 925; **29**, 1027, 1827; **30**, 63, 907, 1573
- Steel Fiber Concrete, **23**, 863
- Steel Fiber-Reinforced Concrete, **30**, 593
- Steel Hardening, **29**, 1027
- Steel Mesh, **29**, 1827
- Steel Reinforcement, **23**, 368; **24**, 231; **26**, 545
- Steel Slag Aggregate, **21**, 1083; **22**, 755
- Steel Slags, **26**, 1737; **27**, 983, 1713
- Stereo Pairs, **22**, 67, 678; **24**, 1140
- Stereophotogrametry, **23**, 1340
- Steric Repulsion, **27**, 37
- Steric Repulsive Force, **27**, 1453
- Stiffness, **23**, 387; **24**, 975; **27**, 115
- Stone Dust, **24**, 580
- Storage, **24**, 285
- Storage Moduli, **26**, 69
- Strain, **25**, 304; **27**, 1603, 1261; **28**, 183
- Strain Effect, **25**, 231; **28**, 985; **29**, 435; **30**, 651, 1289, 1979
- Strain Softening, **22**, 559; **30**, 153
- Strain Localization, **21**, 928; **23**, 1340
- Stratlingite, **25**, 1311
- Strength, **21**, 66, 120, 462, 523, 1083; **22**, 621, 769; **23**, 115, 387, 700, 824, 905, 939, 962; **24**, 165, 483, 721, 765, 776, 975, 1033, 1199, 1390, 1455, 1485, 1558; **25**, 9, 127, 177, 511, 752, 939, 1381, 1512, 1591 **26**, 585, 1045, 1065, 1083, 1381, 1389, 1505, 1537, 1567, 1775, 1789; **27**, 75, 137, 279, 463, 525, 733, 817, 983, 1009, 1271, 1365; **28**, 33, 499, 737, 1201, 1217; **29**, 79, 261, 389, 1387; **30**, 71, 275, 473, 865, 1313, 1807
- Strength Decrease, **27**, 345
- Strength Development, **25**, 1567
- Strength Gradients, **24**, 139
- Strength Loss, **25**, 1, 57
- Strength Properties, **30**, 1367
- Strength-Time Analysis, **25**, 1209
- Strengthening, **27**, 23
- Stress, **22**, 27
- Stress Corrosion, **23**, 13; **30**, 1443
- Stress Relaxation, **27**, 1553
- Stress-Strain, **28**, 33, 499
- Stress-Strain Curve, **29**, 1977
- Stress-Strain Relationship, **30**, 1573
- Strontium Isotopes, **30**, 1105
- Structural Interaction, **30**, 125
- Structural Model, **23**, 377
- Structural Shape, **26**, 165
- Structural Transition, **29**, 1937
- Structure, **21**, 471; **22**, 1001; **24**, 1311; **25**, 1237, 1615; **26**, 955; **27**, 1581; **28**, 141
- Structure Refinement, **26**, 743
- Styrene-acrylate, **26**, 1727
- Styrene-Butadiene, **27**, 711
- Sub-Distribution, **25**, 769
- Substituted Tobermorite, **24**, 573
- Sulfate, **21**, 147; **26**, 551; **27**, 29, 515, 1061, 1093; **28**, 713, 1297, 1605; **29**, 107, 187, 215, 297, 441, 731, 789, 1173, 1305, 1419; **30**, 967, 117, 253
- Sulfate Attack, **22**, 149, 169, 229, 769, 793, 1027; **23**, 1237; **24**, 361, 735, 1475; **25**, 1, 1581; **26**, 1029; **27**, 1179, 1627; **28**, 1545; **29**, 537, 719, 789, 819, 975, 1331, 1397, 1591, 1781, 1969; **30**, 117, 345, 411, 623, 757, 775, 1189, 1535
- Sulfate Degradation, **26**, 1295
- Sulfate Exposure, **25**, 57
- Sulfate Ingress, **25**, 924
- Sulfate Resistance, **21**, 558, SO<sub>2</sub>, 127; **25**, 759; **26**, 113; **27**, 205
- Sulfate-Resistant Cements, **28**, 1655; **29**, 133, 679
- Sulfate-Resistant Mortars, **25**, 980
- Sulfate-Resisting Cement, **24**, 503, 1177, 1347; **29**, 133, 679
- Sulfate Transport, **25**, 1159
- Sulfated and Chloride Aggressive, **30**, 1231
- Sulfation, **29**, 1929
- Sulfides, **26**, 993; **27**, 1627
- Sulfoaluminate Belite Clinkers, **23**, 1351
- Sulfoaluminate Cement, **25**, 1726
- Sulfoaluminic Clinkers, **27**, 127
- Sulfoferrite, **27**, 1037
- Sulfosilicate, **25**, 113
- Sulfur Concrete, **24**, 165
- Sulfur, **23**, 1185; **26**, 1821
- Sulphate Adsorption, **24**, 1428
- Sulphate Expansion, **22**, 631, 845
- Sulphate Resistance, **22**, 1047, 1089; **27**, 697; **28**, 83
- Sulphates, **22**, 56; **23**, 139, 431, 1389; **24**, 8, 1237; **25**, 339; **26**, 1689; **27**, 1271, 1841
- Sulphide, **22**, 181
- Sulphide Content, **22**, 1161

- Sulphoaluminate-Belite Cements, **24**, 1065
- Sulfoaluminate, **24**, 801; **25**, 113; **26**, 805; **29**, 789; **30**, 1731, 1987
- Sulphonated Phenolic Resin, **29**, 255
- Superplasticizers, **21**, 551, 1015; **22**, 121, 605, 663, 725; **23**, 152, 592, 939; **24**, 291, 433, 743, 948; **25**, 365, 1423, 1512, 1591; **26**, 585; **27**, 279; **30**, 1477
- Supersulphated Cement, **23**, 115
- Supplementary Cementitious Materials, **25**, 209
- Support, **24**, 1286
- Suppression, **24**, 73, 1111
- Surface, **26**, 1727
- Surface Area, **21**, 709, 975; **24**, 776, 1025; **25**, 919, 1403; **26**, 1613; **27**, 1713; **28**, 699, 897; **30**, 101, 855, 981, 1543
- Surface Corrosion, **24**, 231
- Surface Depth Analysis, **24**, 1509
- Surface Deterioration, **21**, 56
- Surface Finish, **26**, 545
- Surface Layer, **26**, 1707; **28**, 477, 493, 649, 665, 795; **29**, 179, 267, 1261
- Surface Microstructure, **26**, 1555
- Surface Properties, **27**, 805
- Surface Roughness, **29**, 397
- Surface Studies, **24**, 109
- Surface Treatment, **26**, 1007
- Sustainable Development, **30**, 1349
- Sustained Loading, **30**, 183
- Synchrotron, **25**, 639; **30**, 491
- Synchrotron Radiation, **23**, 267
- Syneresis, **29**, 281
- Synthesis, **21**, 262; **22**, 915; **27**, 7
- Tan Delta, **26**, 69
- Tartaric Acid, **25**, 477
- TEA, **23**, 603
- Techniques, **23**, 431; **24**, 343
- Technological Options, **26**, 1227
- TEM, **24**, 1191; **28**, 411; **29**, 1131, 1705; **30**, 175, 1619
- Temperature, **21**, 179; **22**, 112; **23**, 592, 627, 1056, 1105, 1130, 1357; **24**, 1033, 1428; **25**, 63, 1237; **26**, 669, 1409; **27**, 515; **28**, 25, 197, 357, 423, 635, 763, 841, 1093, 1141, 1157, 1245, 1259, 1595, 1707, 1761; **29**, 27, 143, 241, 537, 567, 603, 1249; **30**, 915, 301, 1251, 1791
- Temperature Development, **29**, 143
- Temperature Rise, **24**, 353
- Tensile Loading, **23**, 609
- Tensile Properties, **26**, 1485; **28**, 955, 1725; **29**, 451, 561, 627, 773; **30**, 1305, 1701
- Tensile Strength, **25**, 1320; **30**, 1277
- Tensile Test, **21**, 963
- Tension, **21**, 545; **23**, 618; **25**, 1075
- Test Conditions, **22**, 515
- Testing, **27**, 1141; **28**, 115
- Tests, **23**, 1245; **26**, 1831
- Textures, **23**, 1078; **27**, 1123
- TGA, **24**, 1085, 1153
- Thaumasite, **27**, 259; **29**, 1331; **30**, 529, 775
- Thawing, **25**, 1775; **27**, 427, 1761
- Theory, **23**, 41; **26**, 1325; **27**, 1021
- Thermal, **21**, 251
- Thermal Activation, **23**, 824; **25**, 1713
- Thermal Analysis, **26**, 1269; **28**, 381, 675, 1157, 1165, 1479; **29**, 623, 847, 961, 997, 1077, 1387, 1487, 1525, 1999; **30**, 137, 307, 1413, 1597, 1609
- Thermal Conductivity, **30**, 59, 1715
- Thermal Decomposition, **25**, 572
- Thermal Dilation Coefficient, **30**, 915
- Thermal Effects, **25**, 1679
- Thermal Gravity Analysis, **30**, 881
- Thermal Insulators, **29**, 121
- Thermal Properties, **25**, 465
- Thermal Surface Deterioration, **22**, 815
- Thermal Treatment, **26**, 1479; **28**, 567, 1109, 1237, 1335, 1585, 1595; **29**, 297, 599, 637, 1619, 1635; **30**, 543, 571
- Thermistor, **29**, 961
- Thermodynamic Analysis, **25**, 157
- Thermodynamic Calculations, **25**, 22; **28**, 591, 1223; **29**, 1039, 1347
- Thermodynamic Equilibria, **22**, 1179
- Thermodynamic Model, **27**, 1649
- Thermodynamic Modelling, **22**, 465
- Thermodynamic Theory, **22**, 845
- Thermodynamics, **22**, 139, 217, 497, 631; **23**, 93, 221, 1195; **24**, 563
- Thermoelectric, **29**, 1989; **30**, 661, 1295
- Thermomechanical Analysis, **24**, 1085
- Thermophysical Properties, **27**, 415
- Thickening Time, **21**, 911
- Thin Coatings, **21**, 809
- Thin Sections, **25**, 827
- Three-Phase Material, **23**, 147
- Threshold, **22**, 990; **26**, 513; **30**, 1047
- Threshold Chloride, **25**, 1543
- Through Solution Model, **24**, 488
- Time, **21**, 147
- Time of Addition, **25**, 353
- Time-Variable Pressure, **25**, 1054
- Tin Salts, **24**, 313
- TiO<sub>2</sub>, **29**, 1851
- Titanium, **30**, 1097
- TMS, **24**, 542
- Tobermorite, **21**, 83; **23**, 321; **25**, 243; **26**, 1335; **29**, 1759
- Tortuosity, **27**, 785
- Toughening, **22**, 1201
- Toughening Mechanisms, **29**, 397
- Toughness, **23**, 609, 863, 1455; **24**, 250, 1121, 1558; **25**, 304; **26**, 1775; **27**, 785; **29**, 397; **30**, 593
- Toxic Elements, **24**, 533
- Toxic Metal, **29**, 515
- Toxic Metals Fixation, **25**, 1147
- Trace, **23**, 131
- Trace Elements, **23**, 59
- Transference Numbers, **30**, 1885
- Transformation, **27**, 1523
- Transition Element Oxides, **28**, 335
- Transition Metals, **27**, 673
- Transition Zone, **21**, 535, 718, 999; **22**, 23, 597; **23**, 147, 335, 581; **24**, 95; **25**, 165; **26**, 529, 611; **27**, 817, 971
- Transition Zone Porosity, **25**, 741
- Transmission Electron Microscopy, **29**, 679, 1189
- Transparency Microscopy, **29**, 727
- Transport Properties, **27**, 761; **28**, 643, 1489; **29**, 479, 523, 827, 1039, 1239, 1379, 1463, 1469, 1663; **30**, 217, 1199, 1267, 1911, 1929, 1947, 1955
- Transverse Loads, **25**, 969
- Trass Cement, **30**, 1615
- Triaxial Cell, **24**, 854; **25**, 1199
- Tricalcium Silicate, **29**, 1611
- Triethanolamine, **29**, 777; **30**, 1615
- Tropics, **23**, 1289
- Tuffs, **21**, 345; **27**, 889
- 20-Years Old, **21**, 1155
- Two-step Mixing, **26**, 585
- Type K Cement, **22**, 961; **23**, 104; **24**, 424
- Typhoon, **29**, 805
- U Phase, **26**, 27, 195; **27**, 7
- Ultra-High-Performance, **24**, 997
- Ultrasonic Measurements, **21**, 73, 219
- Ultrasonic Shear Wave Reflection, **30**, 1633
- Ultrasound, **23**, 640
- Ultrasound Test, **29**, 1749

- Uranium Release, **25**, 1639  
Urea, **27**, 733
- $V_2O_5$ , **25**, 721  
Vacuum Microwave, **24**, 159  
Validity, **24**, 456  
Variability, **22**, 181; **27**, 453  
Vertical Shaft Kiln, **28**, 329  
Very Early Hydration, **21**, 757  
Very High Early Strength, **25**, 136  
Very High Performance, **22**, 319  
Very Low Porosity Systems, **23**, 377, 462  
Vibration, **26**, 387; **28**, 737, 1353; **30**, 809  
Vibration Damping, **30**, 171  
Vickers Hardness, **29**, 747  
Viscosity Agent, **29**, 261  
Volcanic Rock Aggregates, **25**, 841  
Volcanic Slags, **27**, 15  
Voltammetry, **24**, 38; **29**, 777; **30**, 1615  
Volume Change, **22**, 27; **24**, 488; **26**, 567  
Volume Effect, **24**, 721  
Volume Stability, **30**, 1961  
Volumic Water Content, **30**, 1559
- W/C, **23**, 1029; **25**, 281, 1737  
W/C Ratio, **23**, 453; **26**, 475  
W/S Ratio, **26**, 1673  
Wall, **22**, 339  
Wall Material, **26**, 825  
Warm Curing, **30**, 1869  
Waste Catalyst, **30**, 1773  
Waste Ceramic tile, **30**, 497  
Waste Concrete, **25**, 1385  
Waste Management, **22**, 359; **28**, 1525, 1605, 1639, 1669; **29**, 55, 87, 99, 215, 309, 361, 595, 761, 885, 1005, 1305, 1323, 1433, 1605, 1673; **30**, 83, 91, 137, 385, 429, 437, 967, 1131, 1421, 1641, 1755  
Waste Plastics, **26**, 1489  
Waste Recycling, **30**, 419
- Waste Sieve Analysis, **23**, 1307  
Waste Solidification, **23**, 196  
Wastes, **22**, 273, 405, 822; **23**, 1205; **25**, 1435; **27**, 337, 479, 515, 1249, 1817  
Water, **21**, 257; **24**, 165; **28**, 245; **30**, 1465  
Water Absorption, **29**, 765  
Water Absorption Rate, **22**, 1077  
Water Cement, **27**, 1805  
Water/Cement Ratio, **25**, 165, 827; **28**, 897  
Water Content, **24**, 1165; **25**, 1063; **27**, 345  
Water Curing, **24**, 463  
Water Demand, **27**, 889; **29**, 1721; **30**, 1785  
Water Level, **24**, 479  
Water Movement, **30**, 1157  
Water Permeability, **24**, 443; **25**, 790, 1199; **29**, 785  
Water Pressure, **22**, 855  
Water Reducers, **24**, 987  
Water-Reducing Ratio, **30**, 1785  
Water Reduction, **26**, 943  
Water Resistance, **23**, 213  
Water Retention, **25**, 933  
Water Solubility, **25**, 433  
Water Soluble Polymers, **23**, 122  
Water Vapor Desorption Isotherms, **29**, 133  
Waterglass, **24**, 1033  
Waterproofing, **25**, 503; **30**, 227  
Waterproofing Material, **23**, 1085  
Weathering, **24**, 483; **29**, 1249  
Weathering Products, **25**, 1264  
Wedge-Splitting Test, **29**, 705  
Weibull Statistics, **25**, 1179  
Weighing, **29**, 435  
Wenner Array Probe, **26**, 1779  
Wet Deposition, **28**, 221  
Wheat Straw Ash, **30**, 1189  
White Cement, **21**, 391; **24**, 503, 542; **26**, 457, 1361  
Width, **23**, 925
- Wollastonite, **22**, 981; **23**, 905, 1467  
Wollastonite Fibers, **24**, 250, 650, 874  
Wood Composites, **29**, 339  
Wood Fibers, **24**, 1558  
Wood's Metal, **26**, 35  
Work Index, **29**, 727; **30**, 473  
Workability, **23**, 917; **24**, 1299; **25**, 647, 709, 1512; **26**, 225; **28**, 177, 533, 655, 737; **29**, 113, 231, 255, 451, 455, 459, 553, 753, 761, 813, 1427, 1491, 1875; **30**, 599, 767, 1305, 1367, 1543
- Xonotlite, **21**, 83; **27**, 315; **29**, 1759  
Xonotlite Fibers, **23**, 1016  
XPS, **22**, 815; **23**, 773; **24**, 1509  
XRD, **21**, 484, 873, 885, 1176; **23**, 792; **24**, 923, 1153; **25**, 470, 639; **26**, 77, 1153; **27**, 1569; **28**, 335  
XRD Analysis, **24**, 735; **26**, 1277  
X-Ray Absorption, **30**, 1157  
X-Ray Diffraction, **26**, 1451; **27**, 673; **28**, 1105, 1245, 1259; **29**, 63, 355, 997, 1005, 1331, 1419, 1525, 1535, 1611, 1627, 1705, 1881, 1937; **30**, 137, 175, 385, 491, 517, 709, 967, 1023, 1435, 1527, 1609, 1689  
X-Ray Fluorescence, **27**, 1213; **29**, 1627  
X-Ray Microanalysis, **28**, 16; **29**, 17
- Yield Stress, **29**, 765  
Young's Modulus, **24**, 641
- Z-Phase, **26**, 1335  
Zeolite Crystallization, **23**, 1283  
Zeolite Powder, **29**, 957  
Zeolite Product, **24**, 1317  
Zeolites, **21**, 896; **22**, 387; **27**, 889; **30**, 1641  
Zeta-Potential, **21**, 478  
Zinc, **23**, 773, 1259; **26**, 1381; **29**, 545, 651, 1949, 1959  
Zn, **25**, 79; **26**, 377  
ZnO, **28**, 329



